UNITED STATES BANKRUPTCY COURT
FOR THE WESTERN DISTRICT OF NORTH CAROLINA
CHARLOTTE DIVISION

IN RE:)
)
GARLOCK SEALING TECHNOLOGIES)
LLC, et al,) No. 10-BK-31607
)
Debtors.) VOLUME IIIB-AFTERNOON SESSION
_____)

TRANSCRIPT OF ESTIMATION TRIAL
BEFORE THE HONORABLE GEORGE R. HODGES
UNITED STATES BANKRUPTCY JUDGE
JULY 24, 2013

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I N D E X

WEDNESDAY AFTERNOON, JULY 24, 2013

(Court called to order at 2:01 p.m.)

THE COURT: I sent some of you all an email about the confidentiality order.

I guess, Mr. Nebrig, you're probably the only one here that got it. Well, Mr. Grier and Mr. Guy.

I didn't even read the whole thing very well, but it looked like she wanted you to add some language.

MR. NEBRIG: Yeah, they wanted us to add language, but particularly wanted the court to add language too. Basically have the court say that the information that was confidential in the opening that was held was not material to EnPro or EnPro Securities. As we indicated yesterday, that's just not a standard that is something that the court can opine about at this stage because the test of materiality for shareholders is something that is specific to an average investor in EnPro Securities. So that type of comfort really is not doable from a court order.

I think -- I mean, I think, you know, if you think about it, though, the standard is it's probably much higher than even the standard that the whole transcript should have been confidential in the first place, Judge. I mean, that's a way to alleviate their concerns is to say there's nothing that the court saw that was necessarily confidential or should have been protected and to lift the protection from the entire

transcript. That will alleviate their concerns.

The court heard what was shown, saw what was shown. And, again, I think to echo what Mr. Cassada said is that the -- there is nothing confidential in that information to begin with.

THE COURT: I think we'll probably have to hear from Mr. Swett about that or Mr. Wehner. I sent them copies of the thing as well.

MR. GUY: I think it would be fair, Your Honor, to hear from the law firms on that issue, but I understand that may be a solution.

THE COURT: Let's wait -- let's just hold that until the end of the day or first thing tomorrow morning or something like that.

MR. NEBRIG: Thank you, Judge.

THE COURT: Okay. Are you ready, Mr. Harris?

MR. HARRIS: Mr. Boelter.

FREDERICK WILLIAM BOELTER,

DIRECT EXAMINATION (Cont'd.)

BY MR. HARRIS:

Q. Mr. Boelter, when we broke for lunch, we talked about your insulation study and the gasket studies that you have done and that were published.

MR. HARRIS: Your Honor, I neglected to offer

Mr. Boelter as an expert witness on behalf of Garlock -- or on behalf of the debtors in the field of industrial hygiene.

THE COURT: We'll admit him as such.

BY MR. HARRIS:

Q. Mr. Boelter, this is a chart from Mr. Liukonen's examination earlier today and it lists peer reviewed studies with respect to gaskets and also his papers that he's worked on, the navy study and his 2004 paper. Is this the peer reviewed literature as you understand it with respect to asbestos gaskets?

A. Yes.

Q. Now, Dr. Longo is the committee's expert. His name is indicated there in 2002. And his data is -- looks like it's above the historical standards; is that right?

A. That's correct.

Q. Have you had an opportunity to review Dr. Longo's published paper?

A. Yes, I have.

Q. You've looked at it in detail?

A. Yes.

Q. You've looked at the underlying studies, not just the paper but the data in the papers?

A. Yes.

Q. Have you looked at his subsequent papers?

A. I have.

Q. And so I wanted to ask you about this slide. We see -- this is from Dr. Longo's study on the left and your study on the right.
A. Right.
Q. How does this strike you as an industrial hygienist based on the data you have seen in Dr. Longo's study?
A. It doesn't make sense to me in that what you're seeing on the left, the airborne concentrations are in the same range as the airborne concentrations in the activities that you see on the right. That just doesn't make sense to me.
Q. And on both of these, your study was filmed under ambient light. No special lighting there, correct?
A. That's correct.
Q. And what we see on the left, is that with the Tyndall lighting or is that just ambient lighting?
A. That's ambient lighting.
Q. So you've looked at these studies in detail. Have you identified criticisms or issues with those studies?
A. Yes. It's really more how can there be such a difference between the published literature on gaskets and what Dr. Longo found, and there are actually quite a number of flaws with Dr. Longo's approach.
Q. All right. And so these are issues or flaws that you have identified with these studies?
A. Yes.

Q. We're obviously not going to go through all of them. We're going to hit just a couple of them. But the first one you have listed there is "study design."

A. Yes.

Q. Can you tell us what your concern, the criticism that you would have is in that regard.

A. Sure. The -- in setting up an exposure assessment, how the study is designed is critical. As I explained, it's about understanding what people do; watching what people do; interviewing them; watching what they do, in fact, as opposed to what they say they're going to do; understanding how to conduct field studies. None of those, as it turns out, are experiences that Dr. Longo has.

So simply from the standpoint of study design, their approach is wrong.

Q. All right. You have "obtained one of the highest samples during a rest period."

A. Yes.

Q. Can you tell us about that.

A. Yes. In one of the studies there was some confusion, from what I can tell, about sampling pumps not being on and this is reported in the report. But then the highest concentration that's reported is in a period -- during a rest period when there is no activity going on. And that just doesn't make sense.

Q. All right. You also have "improper tools and nonrepresentative work practices." Have you -- can you tell us what you mean in that regard.

A. Sure. For example, when using a flat blade scraper or something like a wood chisel to remove a gasket, the objective is to get under the edge of the gasket and peel it off. And there -- some of the testing that Dr. Longo used, the tool is being used to stab at and chop at the gasket material. That's just not a technique that's used.

The nonrepresentative work practices, similarly the -- what you see people do in the field and how they remove gaskets is not what is being shown in the work done by Dr. Longo.

Q. So there are a number of criticisms about the methodology that he claimed to use, but then also things you've identified where he did not follow the accepted methodology.

A. That is correct.

Q. Have you actually published on this issue or have you written a letter that has been published with respect to the criticisms that you have of these studies?

A. Yes. It's actually the other way around. Dr. Longo wrote to the editor regarding my 2002 manuscript where he was critical of what I had done and I responded, which is typically the way that an editor handles this. So mine was a response to the letter to the editor that Dr. Longo wrote.

Q. And have we displayed the portion of the letter that explains the concerns that you have with Dr. Longo's paper?
A. Yes.
Q. So you mentioned the rest period sample results that was high; is that right?
A. Yes.
Q. Is that from Gasket Study V?
A. It is.
Q. And what's reported is 36 fibers per CC.
A. Right. This is -- this is the reported airborne concentration, 36.85 fibers per CC during a period of time when there is no work activity going on and it's a rest period.
Q. All right. Can you see -- tell us what we're seeing here.
A. Yes. This is where -- during the -- during the activities, there was a failure to turn on the pumps and they're just now realizing it so they're turning on the pumps after some period of activity. And there's confusion about whether the pumps were on or whether the pumps were off. Were samples being collected; were samples not being collected. And it's following this period of time that the sample of 36.8 was received.
Q. Okay. And that's actually explained here in the report itself. "The first 15 minute work period, the four personal

pumps were not activated during the actual gasket removal activity. The personal pumps were then activated during the first rest period."

A. That's correct.

Q. And that's the clip of the video that we just saw.

A. That's correct.

Q. Now, with respect to the published paper, can you identify for us some of the criticisms that you raised in your letter that was published.

A. Well, one of the points that was interesting is that the background before the work ever began was in excess of the current allowable limit which indicates that there is a contamination problem. Whether it is related to the analytical approach or whether it's related to the conditions under which the work was being conducted is not clear. But it's just indicative of the challenges in trying to understand what is meant by the data that's presented in the literature by Dr. Longo.

Q. It says, "Study III, power wire brushing in background." The range is .09 to .12 fibers per CC and the average was 0.11.

A. That's correct.

Q. What is the OSHA limit when this study was done in the early 2000s?

A. 0.1.

Q. And so before the studies started the background level is above the OSHA permissible exposure.
A. That's what's being reported, yes.
Q. You talked about the work practices being non-representative. Can you tell us what you see here.
A. What we're seeing is someone taking a stiff putty knife or a tool that would be used to get under the gasket and simply chopping at the surface of the gasket. And then a high speed, higher rpm grinder is being used aggressively on the flange and to a point of aggressiveness that it actually burns out the grinder. And that's what we're seeing here is the tool itself has been destroyed.
Q. So the chopping of the gasket -- you said you got under the gasket. Is that what you saw in the studies where you had watched pipefitters remove gaskets?
A. That's what I've seen pipefitters do in removal of the gasket is remove the parent gasket and then the technique of polishing the surface of the flange is done with different tools and different methods.
Q. All right. You also, I understand, noticed something else about Gasket Study V; is that correct?
A. That's correct.
Q. So why do we have a picture here?
A. Well, this is just to show you what to look for in the video.

This is what's called a Servo drive pump. It's the type that Dr. Longo was using in the -- in his testing. This is where you hook the tube to connect to the cassette. This is a calibrated device. There's a float here. It's called a rotometer. And during a steady sample collection, that float should stay at a certain position. There is a fault indicator up here that will flash red if it is malfunctioning.

And you can see in this next video that the pump is malfunctioning. This is checking the pump. And what you see is the light is flashing and the rotometer is bouncing and this pump is faulting. That's not reported in the report. Nor is there a -- yet there is a sample result associated with this pump.

Q. Okay. And so the equipment was malfunctioning. I mean, that can happen, can't it?

A. Sure, but you would typically catch that by checking and then you would either flag that sample as questionable or you would note it in the report.

Q. You mentioned a high speed grinder. This is titled "11,000 rpm grinder and brass wire brush."

A. Right.

Q. What's significant about this to you?

A. Well, when I looked at the reference information, this particular grinder is rated 11,000 rpm. And the brass wire brush itself is rated at a maximum of 7,000 rpm.

So this tool is being used in combination with a brush which is not intended for the tool and well above its rated rpm.

Q. So the catalog number is 77735 and the maximum safe speed is 7,000 rpm's.

A. Correct.

Q. Is this a multi-speed grinder or is it just on/off and 11,000 rpm's or zero?

A. It's on/off to the best of my knowledge.

Q. Were these grinders, to your knowledge, available in the 1960s?

A. No, they were not. This is a more modern tool. The historic grinders that one would think that was analogous to this are considerably larger and considerably bulkier.

Q. So Dr. Longo also identified these tools in his report as typical gasket removal tools or typical tools. Is that your understanding of these tools, at least historically being used -- historically being typical?

A. I think it's -- I think it's a bit of understanding the language itself. They are -- they are tools that would be typical for a pipefitter to have today. They wouldn't necessarily be typical for the removal of a gasket off of a flange surface. They would -- an aggressive tool like the power grinder might be used to remove rust and clean up bolts and things like that, but the -- a putty knife would be used

to get under the edge of a gasket and peel it off and a high angle wire brush would be used to clean off rust and clean off paint and remove residual gasket once the parent is off.

Q. I noted that this grinder appears to have a guard on it; is that correct?

A. It does.

Q. When we see video in a second of the grinder, let's look for that. It looks like when he's displayed the tool here, the guard has been taken off.

A. That's right. And you'll see that in the videos that the guard is not on the tool.

Q. Is it standard to take off guards like that?

A. No.

Q. Mr. Boelter, the wire wheel that is identified there in the bottom, do you know what material that's made of?

A. That's made of a hard steel. A high tensile strength steel.

Q. Dr. Longo made this statement in his report on page 36. "A simple rule used in material science demonstrates why these Garlock experts are wrong when they say workers would never use wire brushes to remove the old gaskets because of the potential damage to the steel flanges. This rule is that a softer material cannot scratch a harder material. This allows the use of a wire brush to remove the old gasket without damaging the steel surface."

Now, first, have you ever said that wire brushes wouldn't be used to remove gaskets?

A. No. It's common to see someone using a wire brush to polish the flange surface once the gasket has been removed to remove residue or to clean up the surface. That's typical.

Q. Okay. Have you evaluated whether his tools when used on different flanges could potentially damage a flange?

A. I did, yes.

Q. Okay. This is a carbon steel -- it looks like it says carbon steel wheel.

A. That's right.

Q. And --

A. What that says is it's a cable wire. What that means is they have twisted the carbon steel to create a very aggressive tool.

Q. And it looks like -- this is a photograph from one of his studies?

A. That's right. There's several things you can see. One is sparks are flying. The tool is being used and there is no guard on the tool.

Q. What's wrong with sparks flying?

A. Well, that indicates -- first of all, it's an aggressive approach. But you would only get sparks flying by a steel against steel or some hard material against hard material. You can't get sparks flying off of a nonferrous metal.

Q. Is it common to have sparks flying in refineries or other industrial facilities?
A. No. That would be classified as a hot work practice and would require a hot work permit to do that.
Q. Okay. What's significant about this picture to you? This is from one of his -- his most recent study on gaskets.
A. Right. The -- well, first of all, it's clearly in the brass family of fittings.
Q. So it appears to be a brass or a bronze valve.
A. Yeah, bronze is an alloy of brass so it's in the brass family.
Q. Okay. Now, if we go back to his statement, he's saying that the steel -- the wire brush to remove the old gasket without damaging the steel flange surface. So at least in his most recent study, not all of his flanges were steel, correct?
A. No, that's correct. Not all of them were steel.
Q. And is brass or bronze harder or softer than steel, carbon steel?
A. Well, the hierarchy would be brass, bronze, steel, stainless. Depends upon the alloy, depends upon the content of the different metals in the fitting itself.
Q. Captain Wasson showed us a couple days ago the different valves that would be used on lines where compressed asbestos sheets would be used and looks like most of these are going to involve what he called yellow metals: Brass, bronze, and not

necessarily steel.
A. That's correct.
Q. Is that your experience, not necessarily maritime situations, but in industry?
A. Well, the metal is going to be selected for the process. What's going through the pipes, the temperatures, the pressures. The metallurgy will depend upon what's required. But it's common to see brass and bronze on naval vessels and it depends upon the application what metal is there.
Q. We asked you to evaluate that statement that we saw earlier by Dr. Longo. Did you have an opportunity to purchase flanges and the tools that Dr. Longo used to evaluate whether you could, in fact, damage flange faces using the tools that he was using?
A. I did, yes.
Q. Okay. Can you tell us what we're seeing here.
A. What we're doing is we're starting out with the mechanic's rule to show that it's flat with a back light. And if there were any imperfections across this machine surface, you would see light shining through.
So what I did -- this is me on the right. And what I'm doing is mimicking what I observed in the video in terms of the activities, the pressures, the angles of the same tool at the same rpm with the same type of wire wheel on it. And then I'm going to take a look at what the condition is of the

flange afterward.

So now it's the same back light and you can see there is light coming underneath the mechanic's rule which demonstrates there is deformity to a previously machined surface.

And you can see gouges and streaks from the use of that aggressive tool on a metal surface.

Q. So that's a brass flange. A bronze flange, did you also do the same type of operation on a bronze flange?

A. Right, I did this on a variety of metals that were mil specked metals and there was damage to every one of these surfaces with the use of that tool.

Q. It looks like in part of it there we see the phonographic finish on the flange face.

A. Right. These flanges had a -- it's often referred to as a phonographic finish. These are concentric rings to provide a better grip into the gasket. And you can see that where the tool was used, these rings have been warn away and it creates a deformity to the trueness of the surface.

Q. And then on the bronze flange, did you see similar damage?

A. Right. Again, this is a back light underneath the mechanic's rule that is -- that otherwise would have been flat before the wire brush was taken to it.

Q. In addition to the yellow metal flanges, did you also evaluate what would happen on a carbon steel flange?

A. Right. This is carbon steel. You can see the damage here in comparison to where the tool had not been used.
Q. I want to return to this photograph. I believe we showed it a little earlier in your presentation. This was an illustration of insulated valves and pipes on navy ships; is that correct?
A. Yes.
Q. This was on the Lexington.
A. It is.
Q. I believe Dr. Longo, we covered this before, had said that when he was on the Lexington, he didn't see any valves that were covered with hard insulation like was removed in the pipefitter exposure assessment that you did.
You were on the Lexington, I guess, in 2003; is that correct?
A. That is correct.
Q. And do we see valves that are insulated with the hard insulation?
A. Right. That's what I have shown here with the circles is -- I had been on this ship ten years ago. And it's been my experience on ships is that there is a mixture of hard finishes and the softer laggings. And it clearly is easy to see that there are hard finished insulation systems on these naval vessels.
Q. Mr. Boelter, the -- you can step back.

(Witness resumed the witness stand.)

Q. You understood that when you did your pipefitter exposure assessment, that it was the type of study that might be relied upon to assess the current claimants' and future claimants' potential asbestos exposures that they might have when they did gasket work; is that correct?

A. Yes.

Q. And you've done that for gaskets and you've done that now for insulation, potential insulation exposures as well.

A. Yes.

Q. Is that the type of assessment, retrospective -- or is that the type of exposure assessment that can be used in a retrospective exposure assessment?

A. Yes, it is.

MR. HARRIS: Thank you, Mr. Boelter.

I pass the witness.

THE COURT: Cross examination.

CROSS EXAMINATION

BY MR. FROST:

Q. Good afternoon, Mr. Boelter. My name is Scott Frost, and I'll be asking questions to begin with.

First I want to talk to you a little bit about your litigation and then we'll talk about some of your studies.

You began in asbestos litigation in 1976, correct?

A. That's the first time I testified with regard to an

asbestos matter in litigation, yes.
Q. And prior to your current company that you work for, you had your own company, correct?
A. Yes.
Q. And that first company that you had, that company was Boelter and Associates and then it became Boelter Yates, correct?
A. There was some iterations to it, but there were -- there was a name change, yes. But it was the same company.
Q. Basically, your same company. For how many years did you own that company?
A. I was -- I was an owner for 22 years.
Q. And over that 22 years, you billed about a hundred million dollars, correct?
A. That's correct for total billings, yes.
Q. Now, part of that is litigation-related work, correct?
A. Yes.
Q. And that litigation work was at least $14 million as of 2009, correct?
A. It could be, I don't know.
Q. Do you remember testifying in the past about it being 14 -- about $14 million?
A. No, I don't. That doesn't sound unreasonable to me.
Q. So you wouldn't disagree with me. Do you want me to pull it up or do you and I agree?

A. No, I don't disagree.
Q. And part of that litigation is what you did in asbestos litigation, correct?
A. Yes.
Q. And that -- just for Boelter and Associates and Boelter and Yates over the time period of your own company, that was at least four to five million dollars that you billed just in asbestos litigation, correct?
A. I'm sorry, ask your question again.
Q. For your company, before you sold it, you had billed in asbestos litigation alone four to five million dollars, correct?
A. I would expect that, yes.
Q. Okay. It could be even more.
A. I don't think so, but it would be in that range.
Q. Okay. Now, when you sold your company, you continued to work for asbestos defendants, correct?
A. There were -- they were defendants in asbestos litigation, some of them, yes.
Q. And you've testified for Garlock in the past, correct?
A. Correct.
Q. And I'm not sure you can see this, but the interrogatory answers in this case list a number of cases that you've testified for Garlock in. Have you seen that list, sir?
A. No, I have not.

Q. So you weren't provided that list even though it was provided in discovery?
A. I've not seen this list, no.
Q. Okay. And I don't want you to count it up right now, but would it surprise you that you have been retained by Garlock, at least as of these interrogatories, in at least over 50 cases and it might even be more cases, correct?
A. It wouldn't be surprising to me that I have been engaged to answer questions on behalf of Garlock regarding that number of cases, no.
Q. And in fact, I think you've testified in the past that you believe you've been retained by Garlock in at least a hundred cases, correct?
A. Well, I've been engaged by Garlock on a number of matters that involved a number of cases, sure.
Q. It wouldn't surprise you it's probably around a hundred or so.
A. I haven't kept track.
Q. Now, when you were retained by Garlock, are those typically in mesothelioma cases?
A. I don't know that I could answer that question actually.
Q. Well, I mean, you know the difference between asbestosis and lung cancer cases, correct?
A. Yes, but I don't remember what the claim of injury was.
Q. Would you agree with me that typically you're not

testifying and you haven't testified at trial in any asbestosis cases, correct?

A. Not involving Garlock, no.

Q. Okay. And you've never testified as far as you can remember in a case against Garlock at trial in a lung cancer case, correct?

A. I don't recall. I'm not saying that I haven't. I don't recall.

Q. Would it be fair to say that the times that you have testified at trial for Garlock have been mesothelioma cases, correct?

A. I don't actually remember, no. It very well could be the case. I don't really remember the nature of the claim of injury.

Q. Okay. It makes sense because mesothelioma cases are traditionally more worked up and more experts are retained, correct?

A. Well, mesothelioma cases are rare and so I don't really know what the mix was of the claims of injuries.

Q. Now, even though mesothelioma cases are rare, you have testified for a number of companies in the past in asbestos litigation, correct?

A. That's correct.

Q. And I have Caterpillar up there, Congoleum, N.L. Industries, Dana Victor, John Crane, Babcock and Wilcox,

Anchor Packing, Goulds Pumps, Crane Co, American Standard, Garlock obviously. You've testified in court on behalf of those companies, haven't you?

A. No.

Q. Which companies have you not testified?

A. I have not testified in court with -- on behalf of N.L. Industries, John Crane, Babcock and Wilcox, Goulds, American Standard.

The ones I've testified in court have been for Crane Co and Dana Victor. And that's it aside from Garlock.

Q. Okay. Now, those other companies I have listed up there, you have been retained and given depositions, correct?

A. I've never been deposed with regard to N.L. Industries the best of my knowledge.

I was deposed once in a John Crane case.

I don't -- I've never done any asbestos-related litigation work involving Babcock and Wilcox.

Some of these are projects that I conducted for which I have never been deposed.

Q. Would it be safe you've done work for them concerning asbestos issues for all of those companies up there?

A. No, I don't think that would be safe to say. Some of them were non-asbestos.

Q. Caterpillar, you did a study for them concerning asbestos?

A. That's right. That was one of the published studies we talked about.
Q. Congoleum, you did work for them?
A. I did studies for them as a consultant.
Q. N.L. Industries, you've been hired as a consultant for them in asbestos cases.
A. I did consulting work for them, yes.
Q. Okay. Dana Victor, you've actually testified for them at trial?
A. I just said that, yes.
Q. John Crane, you've been retained in asbestos cases, correct?
A. I was presented once by them in a deposition.
Q. Okay. Babcock and Wilcox, you've been retained as either a consulting expert in the past, right, in asbestos?
A. That's news to me. If you've got some news to that, I'd like to see it. I'm not aware of it.
MR. FROST: Can you pull it up.
Q. Anchor Packing. You've been retained by them in the past, right?
A. I think so. I think so.
Q. Goulds Pumps, you've been retained by them in asbestos cases, correct?
A. I've done some consulting work with them. I don't know that I've ever been presented at deposition. I know I haven't

been presented at trial by them.
Q. Okay. So you've been hired by them in asbestos cases, Goulds Pumps, correct?
A. I don't know that I would say in asbestos cases. I have worked with a number of people over the years involving matters that involved asbestos that may or may not be in litigation.
Q. Okay. But -- and I don't want to belabor the point. The point is is that Goulds Pumps has hired you in the context of asbestos litigation. Whether you've actually testified at trial or at deposition, you have been hired by Goulds Pumps as an expert witness or as a consultant, correct?
A. I think that's correct.
Q. Okay. I mean, I didn't just come up with these names.
American Standard --
A. Well, I don't know where you got Babcock and Wilcox.
Q. Okay. Well, we're going to pull that up.
MR. FROST: Can we go ahead and pull that up.
Q. Sir, this is trial testimony from the Norris case. Do you remember testifying in Los Angeles, California, in the Norris case?
A. I do. And this is what I was thinking about regarding Babcock and Wilcox. This has to do with noise and metal work in fluids at a seamless pipe manufacturing facility had nothing to do with asbestos.

Q. Okay. So did you work with Babcock and Wilcox, just not concerning asbestos now?
A. Well, sure. I've worked for hundreds and hundreds of companies that may be defendants in asbestos litigation. Doesn't mean I did work regarding asbestos litigation or asbestos.
Q. And American Standard, you've been retained as an expert concerning asbestos at American Standard, correct?
A. I've been presented at deposition by them, yes.
Q. Okay. So when it comes down to it, really that list, the only thing that you're disagreeing with now is Babcock and Wilcox because you've been retained by them, just you don't think it was in context with asbestos; is that correct, sir?
A. I wasn't retained by them. I did a project for them 30 years ago.
Q. Okay. But all the other companies I've listed up there, you've either been retained, testified at trial or at deposition or been a consulting expert for other than Babcock and Wilcox, correct, sir?
A. Yes, that's what I said.
Q. Okay. Now, you've also done consulting work for other companies in asbestos litigation and you don't disclose that, correct?
A. Well, as a matter of ethics as a hygienist, as a matter of contract, and as a matter of what I think is appropriate

behavior, I talk about those matters which I am disclosed to talk about and I don't talk about other matters for which I'm not authorized to disclose.

Q. And so there could be a whole nother list of defendants in asbestos litigation who you've either consulted with or done work for that you're not able to disclose to us, correct?

A. I wouldn't even begin to know how to answer that question simply because as I said earlier, I've done more than ten thousand projects and there are hundreds of defendants in asbestos litigation and I may have done work with them that has nothing to do with asbestos litigation. But the fact is, yeah, I've done work with many, many different companies.

Q. And in fact, what you told us in the past is that you sell your time, correct?

A. That's what I do, yes.

Q. And part of the selling your time is you haven't testified in a case at trial or by deposition for a single individual harmed by asbestos since 1989, correct?

A. That's fair to say. The reality is that the only people I do work with involving asbestos litigation from a defense standpoint are those that either manufacture incapsulated material products for which I do not believe there is any harm caused or that use such a product in such a device, such as a Caterpillar engine, for which I do not believe there is any harm caused. I'd be happy to work with plaintiffs on matters

that involve something other than friable materials -- non-friable materials, I'm sorry.

Q. So the answer to my question is yes, you have not testified since 1999 for any individual that's been injured in an asbestos case, correct, sir?

A. I haven't been asked to, that's correct.

Q. So that means you haven't. Thank you.

Now, you have -- I want to talk a little bit about your qualifications and then we'll go into the studies a little bit.

You're not a doctor, correct?

A. That's correct.

Q. And you don't even have an advanced degree, correct?

A. That's correct.

Q. And you're not a naval engineer.

A. That's correct.

Q. And you're not -- never been a machinist mate.

A. Correct.

Q. Never served in the United States Navy.

A. Correct.

Q. Never were a pipefitter.

A. Correct.

Q. And you have no formal training on how to work with flanges, correct?

A. I'm not sure that's correct. I don't know what you mean

by formal training. I certainly have training with regard to work on flanges and what people do with them.

Q. Well, in fact, what your training is is that your family used to be plumbers and you used to hang around your family, correct?

A. No, I don't think that's a fair characterization either.

Q. Okay. You would agree with me, sir, that you have never been hired for money to be a pipefitter, correct?

A. That is correct.

Q. You've never been a member of the pipefitter union.

A. That's correct.

Q. You've never been a member of the insulation union.

A. That is correct.

Q. You've never been a member of any union that deals with asbestos and thermal insulation or asbestos and gaskets, correct?

A. That's correct.

Q. Now, you've given a number of presentations over the years, right?

A. That's right.

Q. And in fact, when we have this blue outline here, these are from power points that you've actually given to people. You remember this, right?

A. Well, I remember this particular slide being used in several presentations I've given, yes. I don't remember which

specific one it's out of.
Q. Yeah, well, this is your slide, right?
A. It looks like my slide, yes.
Q. Okay. And what I want to do is I do want to keep it simple just like you talked about in your slide so I want to talk about what you've published in the literature. You remember publishing in 1989 in a journal called Asbestos Issues an article, correct?
A. Yes.
Q. And it's called "Air Sampling and Monitoring," correct?
A. Yes.
Q. And that's you right there.
A. Yes.
Q. And you went through a number of -- and it may be hard to read. It's not the best copy in the world. But you talk about asbestos and what's going on in the context of buildings, correct?
A. Are you asking me what the article is about? I'm not sure what you're asking me.
Q. Yes, that's what the article is generally about, right? It's asbestos in buildings and how to deal with those problems.
A. No, the article is the title: "Air Sampling and Monitoring." That's what this is about.
Q. Did it talk about where you can commonly find asbestos in

buildings and the types of materials in buildings that may contain asbestos?

A. Sure. That's background -- it's a backdrop to what the article is about which is air sampling and monitoring.

Q. Okay. And so let's look at your article. Hopefully you can read that. Can you read it on your screen?

A. I can.

Q. Okay. It says, "The three most common types of asbestos found in buildings are chrysotile, amosite and crocidolite, with chrysotile comprising about 90 percent of all asbestos used."

Now, you agree with that, correct, sir?

A. I cited to a source from which I got that information. I don't know that I agree with it, but it's an often cited reference.

Q. Okay. So you published this paper yourself, right?

A. That's correct.

Q. And you wrote it. No one ghost wrote it for you.

A. It's my article, yes.

Q. Okay. So right now you're not sure -- you don't agree with your own article?

A. Well, what I agree with is I cited to a source for that statement.

Q. Okay. So do you agree now as we sit here today that chrysotile comprised about 90 percent of all the asbestos used

in building materials?
A. What I agree with is that is an often referenced amount of chrysotile. I don't know whether it is correct or not correct.
Q. Okay. So you're putting out information that you don't know if it's correct or not correct?
A. I cited to a source for the information.
Q. Now, the other thing you talk about is you list different materials and you say, "And miscellaneous materials which include a variety of products such as ceiling and floor tiles, wall boards and gaskets."
So in this article when you talk about miscellaneous materials, you're talking about things like ceiling and floor tiles, wall boards, and gaskets, correct, sir?
A. Yes. This is the classification that EPA uses.
Q. Right. And so you then start talking about different techniques, but then you also talk about how individuals can be exposed to asbestos. Do you remember that, sir?
A. I haven't read this in a while. Do you want me to read it? I'm not sure what you're asking me about.
Q. Well, we'll read along together. You can see that, though, correct?
A. Yes.
Q. It says, "Each asbestos fiber is a bundle of many small fibers. Upon disturbance, these microscopic fibers remain

suspended in the air for extended periods of time and can be carried to locations well removed from the source."

Do you agree with that, sir?

A. I agree that in 1989 that was the prevailing thought. I think differently today.

Q. Okay. So at least right when you published this and you made a citation, you agreed that microscopic fibers remain suspended in the air for extended periods of time and can be carried to locations well removed from the source. You wrote that and published that, but you now disagree with that?

A. The purpose of this article was about air monitoring. This is a backdrop to the purpose of air monitoring and how to set up stategies for air monitoring. The whole concept here is there are asbestos-containing materials used in buildings and they may be disturbed and in that disturbance may cause fiber release and you need to do air monitoring to characterize those exposures.

Q. Right. And some of the materials that can be disturbed are ceiling and floor tiles, wall boards, and gaskets, correct, sir?

A. Well, sure. Of course. That's the EPA classification system. But the EPA also regulates friable materials.

Q. And so let's continue on with what you wrote and see if you agree with it now or disagree.

It says, "After settling on surfaces, the fibers can be

stirred into the air with local movement. Disturbances that can cause fiber release from friable ACM include vibration from machinery or equipment, maintenance activity, product deterioration, ventilation systems, water damage, natural building movement and contact by building occupants."

Sir, do you still agree with that?

A. Not really, no. The -- I agree that they can cause those types of disturbance -- I mean, disturbances can cause fiber release, I agree with that. And these are examples of intuitive sources that can cause disturbances.

Whether or not they result in significant airborne concentrations is a matter about which I have done considerably more studies than I had in 1989 and I have come to an appreciation of greater depth than what is apparent from this quick read.

Q. Okay. So you disagree with this portion of the paper that you published, correct?

A. It depends.

Q. Well, in regards to that portion you disagree.

A. Well, what I disagree with is that this characterization applies to miscellaneous materials or to non-friable materials. I would disagree with that.

Q. Okay. You would agree with me, sir, that no where in here do you draw that distinction, correct?

A. That's correct.

Q. Okay. Now, you also talk about in this article, "While asbestos and lung cancer have been correlated with chronic occupational exposure levels (two to 15 fibers per cubic centimeter)," and you have a cite, "mesothelioma may result from a much lower exposure."

Do you still agree with that, sir?

A. To some degree, yes. What we've also come to appreciate is fiber type makes a significant difference.

Q. Now, sir, you would agree with me that this debate about fiber type, that's not something new, correct? I mean, it began back with Dr. Selikoff's conference in 1964, didn't it?

A. I'm not sure what you're referring to.

Q. Okay. You're not aware that in the 1964 Selikoff conference, there were folks that were saying -- particularly folks that were related to the Quebec asbestos mining industry, saying that maybe chrysotile wasn't as toxic as amphiboles. You don't know anything about that?

A. No, I'm aware of that --

Q. Okay.

A. -- characterization. But since that time there have also been other -- there's been considerably more studies since 1989 with regard to differences in fiber type and the potencies.

Q. You would agree with me that prior to 1989, this whole idea of differences in potencies and different fiber types

causing mesothelioma, that was in the literature, though, correct, sir?

A. Sure. Well, some of it was. But there -- as I said, there's been considerably more since then. But during this period of time, there was also differentiation within the ACGIH in their TLVs of a different allowable limit based on fiber type.

Q. Sir, there was no difference in 1989 in the OSHA standards concerning different fiber types, correct, sir?

A. OSHA has never differentiated. ACGIH has.

Q. And, in fact, the ACGIH today does not differentiate between fiber type; is that correct, sir?

A. That's correct because the level that is adopted today is the lowest level for the differentiated fiber types in the '80s.

Q. And would you agree with me, sir, that at least in this article that you wrote in 1989, you believe that mesothelioma may result from a much lower exposure than that required for asbestosis and lung cancer, and you did not differentiate between exposures from thermal insulation and gasket materials, correct, sir?

A. In this manuscript? This manuscript has to do with air sampling methodologies. This isn't a treatise on toxicology or on risk.

Q. Sir, you -- so is the answer no?

A. To which question?
Q. So would you agree with me that no where in this paper do you cite any differences in fiber potencies or claim that chrysotile or working with gaskets and packing is any different than working with thermal insulation concerning risk for mesothelioma.
A. I'm pretty confident I didn't say that. But I'm also pretty confident that it's clear from the manuscript that there -- that I am talking about differences between friable, non-friable and the three classifications that EPA has for thermal system insulation, surfacing materials and miscellaneous materials, and that inherent in that is a difference between the potential for fiber release, and therefore the whole point of the article which is about air monitoring.
Q. I agree, sir. The question to you is very simple. Did you differentiate for mesothelioma between any of the different fiber types?
A. I don't recall whether I did. I haven't read this in some time.
Q. Would you like to review it?
A. Well, I did cite to a footnote. I don't know what that footnote is.
Q. It's not referring to mesothelioma, correct, sir?
A. Pardon?

A. It's not referring to mesothelioma.
Q. I don't know.
MR. FROST: Your Honor, may I approach?
THE COURT: Yes.
Q. Mr. Boelter, I'm going to hand you a copy of your article so that way maybe we can speed things up.
A. Okay.
(The document was tendered to the witness.)
Q. And that's a copy of your article, correct, sir?
A. Yes.
Q. Okay. And if you want to look at footnote 7, you can have at it.
A. Right, it's a citation to EPA, 1988 document, Airborne Asbestos Health Assessment Update.
Q. Okay. And would you agree with me that that 1988 EPA document did not differentiate between fiber type concerning carcinogenicity?
A. That's not a word, but okay.
Q. I'm sorry, sir?
A. The word you used isn't a word, but okay.
Q. Okay. Would you agree with me that in that EPA document there's no differentiation between fiber type and risk for mesothelioma?
A. I don't know.
Q. Okay. Would you agree with me that you did not draw any

differentiation in your article between fiber type and mesothelioma?

A. Again, I -- that's not the nature of the article. I wouldn't be surprised if I didn't, and I don't recall whether I did.

Q. Okay. Good enough.

Now, you said you didn't -- this isn't a treatise on asbestos, but you did talk about things like dose-response. So this isn't just about air monitoring and the results. I mean, you've written articles like that where you talk about air monitoring and say somebody did work practice and I recorded that work practice and here are my results. You actually added additional things concerning asbestos and disease, correct, sir?

A. Well, I'm giving -- I'm giving a backdrop to the reason one does air monitoring, how one goes about doing that.

Q. Right. And one of the reasons you need to do air monitoring, and the quote says there, "Though there appears to be a dose-response relationship for lung cancer and asbestosis, this is not apparent for mesothelioma."

Do you still agree with that, sir?

A. Actually, no.

Q. So you disagree now with that statement that you published.

A. That's correct.

Q. Okay. And then you said, "Occupational exposure standards were specifically designed to reduce the occurrence of asbestosis and lung cancer."

And you and I can agree on that, correct?

A. The -- you're talking about the OSHA standards?

Q. Sir, it's your article. I'm just quoting from it. It says, "Occupational exposure standards were specifically designed to reduce the occurrence of asbestosis and lung cancer." You agree with that, correct?

A. Sure.

Q. And in fact, all the occupational standards and all the TLVs and all the things you talked about and Mr. Liukonen talked about, those were never designed to protect against mesothelioma, correct, sir?

A. Actually, I'm not sure that's true.

Q. Do you say that right there, sir? You just say lung cancer and asbestosis, correct?

A. This article is what, 24 years old. I'm saying it now.

Q. Okay. I know what you're saying now, sir. We're testing what you used to say versus what you said now.

And you would agree with me that this was -- after you published this, you have testified almost exclusively -- well, no, exclusively for defendants in asbestos litigation, correct?

A. Well, I would say well after. But before this I

testified on behalf of plaintiffs involving claims of injury involving friable insulation materials.

Q. Now -- so you don't have an opinion whether occupational standards, the ones that you testified about, the OSHA standards, the ACGIH standards, whether those were never intended to apply to mesothelioma. You have no opinion on that.

A. You're talking about historic standards. I would agree with historic standards, that's correct.

Q. Okay. So historic standards were never meant to protect against mesothelioma, correct?

A. In part because it wasn't understood. But the historic standards were directed at principally asbestosis.

Q. So I'm correct, they were never designed to protect against mesothelioma.

A. The historic standards, that's correct.

Q. Thank you, sir.

Now, you say, "However the National Institute of Occupational Safety and Health (NIOSH), the EPA, and the Occupational Safety and Health Administration (OSHA) have concluded that there is no known threshold of exposure to asbestos below which there is no health risk."

That's what you wrote, correct, sir?

A. Well, what I'm citing -- I'm again citing to a reference and that is what EPA and NIOSH and OSHA have as a policy

position.
Q. And that policy position as we sit here today in 2013 is the exact same, correct, sir?
A. That is correct.
Q. And in fact, if we ask NIOSH, OSHA and EPA, even though there's been other studies that have come out more recently since you published this, they have gone back and re-evaluated that and as we sit here today, OSHA, NIOSH, EPA, IARC, all have published that there is no safe threshhold for exposure to asbestos, correct?
A. That's the policy position, that's correct.
Q. And that policy position doesn't matter whether it's crocidolite, amosite or chrysotile, correct, sir?
A. That's correct.
Q. Now, another thing you do talk about is using TEM, that's transmission electron microscopy, correct, sir?
A. That's the instrument, yes. That's not a method.
Q. Right. True, true. Gotcha. That's a good point.
So what this is is -- you testified -- or you talk about this, is that -- it says, "Another technique, transmission electron microscopy, TEM, is the method of choice for determination of asbestos fibers in the air. Fibers are examined in detail at 20,000x magnification. Through the examination of each fiber's size, shape, crystalline structure and chemical composition, an exact identification is made.

TEM is the only analysis method that can positively identify asbestos fibers."

You still agree with that today?

A. I do.

Q. Okay. Now, do you still agree with this statement that you published in 1989 about there is no safe threshold?

A. I -- that's not my statement. I am citing to what OSHA, EPA, and NIOSH have taken as their policy position. Do I believe that there is a safe level of exposure? Yes, I do.

Q. Okay. So you believe there is a safe level?

A. I do, yes.

Q. Okay. Have you testified in the past that there was no safe level of exposure to asbestos?

A. That's correct. That's exactly what I was saying here is that's the policy position of the agencies.

Q. Okay. I want to distinguish between the policy statement and your own opinion. This is a -- the case, the Weller case from 1988. Sir, do you remember testifying in that?

A. Yes. Actually, I think I do. I think this is the one I was referring to prior to the publication of this article on air sampling and monitoring.

Q. Right. And the question to you was, "Did I properly hear your direct examination where you espoused the view that there is no safe level of exposure to asbestos?"

A. That's correct.

Q. And your answer was, "That's correct."

So you have testified in the past, sir, have you not, that there is no safe level of exposure to asbestos?

A. That's correct.

Q. Okay. And so it wasn't just agencies that you're citing in your article, that's been your testimony in the past.

A. Twenty-five years ago, that's correct.

Q. Okay.

A. I've learned a lot more since then.

Q. Well, let's talk about what folks have learned since then.

You are a member of the AIHA, correct, sir?

A. I am, yes.

Q. And in fact, you on direct were talking a lot about the awards that you've won for the AIHA, correct?

A. I've been the recipient of awards, yes.

Q. And the AIHA, that's actually the publication that you published one of your studies in, correct?

A. The journal is the -- the journal of the AIHA, yes.

Q. Right. And so you've published in their journal. You find them to be authoritative, correct?

A. I find them to be the largest organization involving industrial hygienists, if that's what you mean.

Q. Right, they're the largest organization of industrial hygienists in the United States.

A. Of the world actually.
Q. Of the world, okay. And you've won their awards. You're a fellow and you've won -- you hold them in high regard, right?
A. With regard to what?
Q. Well, you would agree with me that the AIHA, members of the AIHA and the AIHA itself have a specific knowledge and understanding of asbestos and other carcinogens in the workplace, correct?
A. Well, I don't know that I can completely agree with where you're asking these questions. The AIHA is a forum in which to exchange professional information and ideas and thoughts.
Q. Okay. Well, let's --
A. It doesn't mean everyone agrees within the organization on every topic.
Q. Well, that's good. But let's talk about what the AIHA has actually talked about concerning asbestos. And this is the AIHA for Job Health and Health Safety on the Care of Asbestos-Containing Flooring Material.

Now, you're familiar with asbestos-containing flooring material because you talked about that in your original article, correct sir?
A. Not just because of that, but yes, I do know about it.
Q. And you actually did some work for Congoleum, right?
A. That's correct.

Q. And Congoleum made floor tiles.
A. Yes, they did.
Q. And in fact, they made chrysotile floor tiles.
A. Actually, not to the best of my knowledge.
Q. Are you aware -- well, put aside whether they made asbestos-containing floor tiles or not. But you're aware that chrysotile was the asbestos used in floor tiles, right?
A. That's correct.
Q. Okay.
A. If it was used at all.
Q. If it was used at all in floor tiles, it was going to be chrysotile, correct?
A. Yes.
Q. Okay. So we're talking -- the AIHA is talking about flooring material that would have contained chrysotile. And they say, "What is the hazard?

"Inhaling asbestos fibers can also lead to cancer of the lining of the lungs or the abdomen, which is always fatal."

So that's what your organization, the AIHA, is publishing in conjunction with OSHA concerning flooring material that contains chrysotile asbestos. Do you see that, sir?
A. I don't see the word chrysotile.
Q. Well, sir, that's why I asked you the questions about if we're talking about asbestos-containing flooring material we're talking about chrysotile; and you agreed with me if it's

asbestos-containing flooring material, it only contains chrysotile, correct?

A. Yes.

Q. Okay. So even though they don't have the word there, we all know that if we're talking about flooring material, it's chrysotile. You would agree with me on that, right?

A. Well, I don't -- I don't -- I've never seen this document before and I don't even know its date so I don't know anything about this document.

Q. Okay. Well, let's just march through it. It's 2010.

Now, also the AIHA in conjunction with OSHA talked about "Why should you care?" Do you see that, sir?

MR. FROST: Your Honor, may I approach?

THE COURT: Yes.

(The document was tendered to the witness.)

Q. Mr. Boelter, I've handed you a hard copy. Actually, this is a document available from the AIHA and OSHA concerning asbestos-containing floor material. Okay. Do you have a copy now, sir?

A. I do.

Q. Okay.

MR. HARRIS: Can we have a copy of it, please?

(The document was tendered to Mr. Harris.)

Q. And what it says is, "Asbestos is a known human carcinogen."

And again, we're talking about in the context of asbestos-containing flooring material that you and I have agreed is chrysotile.

It says, "Asbestos is a known human carcinogen with no known safe threshold of exposure." Do you see that, sir?

A. I do.

Q. And you disagree with that, correct, sir?

A. I do.

Q. So even though you have published with the AIHA and you've received their awards, you just disagree with this organization and OSHA when they publish things like there is no safe level of exposure, and you disagree with your own publication where you said it in the past, correct?

A. What I'm saying -- I'm not sure what your question is. What I'm saying today is that there is a known safe level of exposure to asbestos.

Q. And can you name me a single government agency or international agency that has published that there is a known safe level of exposure to asbestos?

A. Sure.

Q. Who?

A. The OSHA themselves have a PEL that's been in place for 20 years. ACGIH has had TLVs in place for 50 or 60 years. They establish levels and those are what are called allowable levels. They are, in essence, what it means to have a safe

level of exposure --
Q. Sir --
A. -- for a working lifetime.
Q. And you can try to turn it around the way you want to, but would you agree with me that if I pull up OSHA publications and we talk about AIHA, and this is a joint statement with OSHA, what OSHA actually says is that there is no known safe level of exposure but they have established permissible exposure levels but those permissible exposure levels are not to protect against diseases like mesothelioma, correct?
A. No, I don't agree with you.
Q. On which part?
A. Practically anything that you just asked in that particular question. Clearly these are safe levels. They're published. If they were unsafe levels, OSHA has the authority to change them.
Q. Well, actually -- and I don't want to get into a debate about this. Would you agree with me that OSHA has published and publishes today -- if I went on OSHA, went on their website and typed in asbestos, I would find this same language, "Asbestos is a known human carcinogen with no known safe threshold of exposure."
A. Sure. And they come to this conclusion because of the linear model that they use in developing a standard, and I'd

be happy to go into that if you like. But the point is if, in fact, OSHA were saying because there is no known safe level of exposure, this published allowable limit is unsafe, they can change it.

Q. In fact, sir, what they found is is that's the lowest number that they can get to with modern technology, isn't it?

A. No.

Q. Okay. You and I can at least agree that OSHA and NIOSH, EPA and IARC have all published whether they have a permissible exposure level or not; that even though they have those permissible exposure levels, there is still no known safe threshold, correct?

A. That makes no sense. It makes no sense to me at all as a professional to publish a value and say this is an allowable limit and then turn around and say, well, it's actually an unsafe allowable limit and we're not going to do anything about it. That makes no sense.

Q. And I know, sir, you disagree with it and you disagree with what you published because you originally said there's no safe level, you've testified that there is no safe level. And would you agree with me that when you testified in 1988, there were PELs, correct?

A. Yes, that's right.

Q. Okay. And so what we're really dealing with is semantics here. As we sit here today, OSHA, EPA, IARC, NIOSH, all of

those organizations have stated and state to this day that there is no known threshold of exposure to asbestos that will not cause disease, correct, sir?

A. That is the policy position. I have said that. And I'd be happy to explain further why that is a conundrum.

Q. Now, when you did your original 2002 paper, sir, you published that in the AIHA, the folks we just talked about; and when you published it, you indicated that it was funded by Coltec Industries. Do you remember that, sir?

A. Yes.

Q. And no where in this paper do you explain that Coltec Industries is Garlock, the folks sitting here today, correct?

A. Well, I don't know that that's true. I disclose that I'm using Garlock products in the manuscript.

Q. Correct. You say you use Garlock products, but you don't say here that this project was funded by Coltec Industries, the people who brought you Garlock.

A. That's not part of a disclosure. I wouldn't have even thought to characterize it that way. The people that funded the project were Coltec Industries. That's what I disclosed.

Q. Now, when you -- but you never disclosed and you've been criticized for this. You talked about Dr. Longo's criticism of you. That was part of the criticism, right, was that instead of saying this was funded by Garlock, the material that we use, you say Coltec Industries, and you've got to go

out and figure out who the heck Coltec Industries are, correct?

A. Garlock did not fund it. Coltec Industries funded it.

Q. And you understand that Coltec Industries owned Garlock at the time, right?

A. That's my understanding.

Q. Okay. So you could have just said Coltec Industries, the folks that own Garlock?

A. I didn't know what the relationship was between Coltec and Garlock. Coltec funded it. I used Garlock materials in the project and I disclosed all of that throughout the manuscript.

Q. So you're saying now that you used Garlock material and you didn't know that Garlock was actually funding the study?

A. I didn't say Garlock funded it. I said Coltec funded it.

Q. So you don't draw -- you draw a distinction there?

A. Of course.

Q. Even though Coltec --

A. Of course I draw a distinction between Coltec and Garlock.

Q. Okay. Now, this wasn't the first time when you published that in 2002 that you had this discussion with them about publishing these studies, correct?

A. With whom are you talking about?

Q. This is the 1996 letter, sir.

A. I know, but there was something that you asked me that I didn't quite catch.
Q. Well, this 2002 study, this is the culmination of many years of effort and negotiation back and forth between you and Garlock on different valve studies, correct?
A. Not Garlock. This communication is with Coltec Industries.
Q. Well, you agree with me, sir, that Coltec Industries owned Garlock, right?
A. That's correct, but the communication is with Coltec Industries.
Q. Okay. So when I say Garlock, can you agree with me that I mean Coltec Industries, also?
A. Actually, no, I can't.
Q. Okay. I'll just say Coltec Industries, the owners of Garlock, then.
A. That's fine.
Q. So in 1996, at least as early as that, you were already being in discussions, negotiations with Coltec Industries, the owner of Garlock, to do these types of studies at their behest, correct?
A. That's correct.
Q. And in fact, what you did was you sent back and forth a bunch of sort of bids, I would call them, where you say, listen, this is what type of work I can do and this is how

much it's going to cost you, correct, sir?
A. I certainly wouldn't call them bids. They were clarifications of scope and cost.
Q. Okay. Scope and cost. And so what you did was you basically said, listen, I have these types of services to offer to you and if you want them, this is what they're going to cost, correct?
A. Well, they requested this. This wasn't me soliciting the work. They requested this work.
Q. So Garlock -- or Coltec, the owners of Garlock, came to you and said, Mr. Boelter, we are defendants in litigation and we would like to hire you to do some tests for us, correct?
A. Well, no, actually, that's not the way the conversation went.
Q. Well, how did the conversation go?
A. The conversation went we are interested in understanding your knowledge and experience with regard to gaskets, your knowledge and experience with regard to the trades that work with gaskets. How would you go about developing an exposure assessment to characterize exposures related to various activities? And that's what this does is lay out how I would go about doing that.
Q. And so in 1996 they came to you and said we want to know your experience with gaskets and we want to know if you could develop some protocols and some studies to look at how much

people are exposed to asbestos using gaskets.
A. You know, I think that that's -- I'm not really okay with your choice of words there, but I get your concept. And the point is that's basically correct. Namely, there wasn't much in the literature at this point. There's only two data points I know of in the literature at this point, Chang and McDermott, and in 1996 I think Spence and Roche was just being published, and I was familiar with the RS Means catalog. So there was very little data in the literature with regard to gasket exposure, exposures resulting from gasket activities.
And so the objective was how would I go about characterizing exposures resulting from gaskets when there's very little in the literature?
Q. And that was in 1996?
A. That's correct.
Q. In fact, you had been hired by Garlock in 1993 to begin with, correct?
A. Well, I started working with Coltec in 1993 with regard to developing how would you go about developing this.
Q. Okay. So in 1993 Coltec, the owners of Garlock, come to you and say we are -- they acknowledge they were in litigation, right?
A. Yes.
Q. And they said we need to come up with, because there isn't much in the literature, some analysis of different work

practices to see how people are exposed or potentially could have been exposed to Garlock gaskets, correct?

A. No, I don't think that's really correct. As a hygienist, my observation was where would the exposure be coming from from gaskets. And it's not surprising that there wasn't much published data in the literature with regard to gaskets because as a hygienist you wouldn't expect much fiber release from them.

So the question was how would you go about developing data, objective data is the terminology, to demonstrate what the exposures would be associated with different tasks and activities that involved gaskets?

Q. And all this began in 1993, correct, sir?

A. That is correct.

Q. And in fact, in 1993 you had the ability and training and background to conduct this type of testing, correct?

A. That's correct.

Q. In fact, you had the experience to do all this kind of testing on gaskets and whether people -- to obtain data regarding asbestos released from gaskets in 1993, correct?

A. That's correct.

Q. And so the only thing that had to really be done at that point was there needed to be some decisions as to whether they should pay for you to do that type work, correct?

A. Well, there were decisions and one of the questions is

how would it get funded, sure.
Q. And in fact, at least as of 1996, you were sending proposals back and forth with them and talking about how would you conduct this work, correct, sir?
A. There were exchanges of ideas, yes.
Q. And in fact, you talked about the different flanges that you might use and you talked about the industrial flanges believed to contain Garlock gaskets that had been obtained from a decommissioned power house. You remember those flanges, don't you, sir?
A. Yes.
Q. And in fact, many of those fittings and flanges were believed to be in service for over 40 years, correct?
A. Yes, that's what I was told.
Q. So the materials, at least, in 1996 you were talking about using for your studies had been in service for at least, according to you, at least 40 plus years, correct?
A. That's what I had been told.
Q. Now -- and there was nothing in 1996 or 1993 that kept you from doing these type tests other than the funding from Garlock or Coltec Industries, correct?
A. Sure. Somebody needs to pay for the work, sure.
Q. Right, but the techniques and everything, you knew them and could do it.
A. Yes.

Q. Now, you -- this is a picture from some of your work, correct?
A. Yes.
Q. And in fact, this is a valve fitting and you indicate that those gaskets, some of those gaskets were at least 39 years old. So a lot of -- or at least some of your work involved fittings that are very old, correct?
A. Yes.
Q. Now, you talked about Dr. Longo and some criticisms of his work and the wire brushes and things like that. And I want to be sure that we're correct on the set up of this because what really happened was is you never published an article when Dr. Longo published his article that criticized his article in relation to the publication of it, correct?
A. I never said I did.
Q. I know you didn't. It was confusing. What happened was is you published your article. Dr. Longo and Dr. Hatfield sent a letter to the editor of the AIHA and said there were some problems in your study and they pointed those problems out, correct?
A. Hatfield is not a doctor, but --
Q. Mr. --
A. Longo, Hatfield, and several other people were part of a group that submitted a letter to the editor of the AIHA journal criticizing my 2002 manuscript.

Q. Well -- and that's a good point. Dr. Longo has a Ph.D, correct?
A. Yes.
Q. And Mr. Hatfield is just like you, he doesn't have an extended -- I think he has a masters. You don't have a masters, correct?
A. That's correct. I don't think Mr. Hatfield has any credentials either.
Q. But you would put him in the same position as with you, no credentials, right?
A. I have credentials so the answer is no, I don't put him in the same position.
Q. Now, you're aware that Garlock stopped making asbestos gaskets in the 1980s, correct?
A. I don't remember when they stopped making asbestos gaskets.
Q. Have you reviewed that in the past?
A. I don't remember what date it was.
Q. Would you agree with me that was at least ten years prior to you being involved in asbestos litigation?
A. I don't know.
MR. HARRIS: Objection, Your Honor. That's not true. I think Garlock stopped selling their gaskets in 2001. It's in all the discovery responses.
Q. Sir, do you know when Garlock stopped selling

asbestos-containing gaskets?
A. Based on the representations by Mr. Harris, 2001.
Q. So you don't have any independent knowledge of that?
A. That's what I was trying to tell you.
Q. Now, when you -- so when you were doing your research in 1996, was that in furtherance of continuing to sell Garlock gaskets, then?
A. No, I don't know that I would characterize it that way. I was being asked how I would go about characterizing exposures from gaskets that had been in use and that's what I was focused on.
Q. Well, if they did stop selling asbestos-containing gaskets in 2001, were you aware -- the gaskets you got for your study, where did you get them?
A. From the Garlock facility in Palmyra, New York.
Q. And what year was that?
A. It would have been in the mid '90s sometime.
Q. Okay.
A. When I did my study.
Q. And when you got those materials in the mid -- well, that's a good point. When did you actually do the study and when was it published?
A. Okay. Just to be precise about this. The dates of the actual individual studies are in the respective reports and they speak for themselves. The publication of the manuscript

that we've been talking about was in 2002.
Q. Would you agree with me that those studies were done a few years before that publication?
A. Sure. They were done in the mid '90s.
Q. Mid '90s.
A. Yes.
Q. Okay. So what happened was in the mid '90s, you were contacted by Coltec, the owners of Garlock, and they said we want you to do some studies. You did those studies.
And then in the year 2002, according to counsel, a year after they stopped selling asbestos-containing gaskets, you published that study, correct?
A. Well, I actually presented the results at an AIHA conference in '96, '97, something like that. And then I undertook ultimately to prepare a manuscript for publication.
Q. Now, when you did this particular work, your work has been criticized by Longo and some other folks concerning some of the work practices. Do you remember that, sir?
A. I remember responding to what they said.
Q. Okay. And one of the criticisms was that the materials that you used, because they were old, or whatever reason, that a lot of the gaskets just fell out of the fittings. Do you remember that?
A. I do remember that. That's just plain nonsense.
Q. Plain nonsense.

A. Plain nonsense.
Q. Okay. Now, you actually videotaped -- let me go back. Well, let me go forward.
This is you correct, sir?
A. On the left, yes.
Q. Okay. And this is actually a copy of the video that you did during your study, correct? Because y'all videotaped it.
A. Well, no. Each test that I did were eight distinct events over the course of 8 hours. I only videotaped the first event of the day. I did not videotape all of the events of the day.
Q. Okay. Well, let's look at this excerpt because one of the criticisms of your study was that the particular materials when you had these flanges and you opened them up, the gasket material actually was intact. That's what Dr. Longo, Mr. Hatfield, and others have said in the peer reviewed literature, correct?
A. That's correct, and that's nonsense.
Q. Okay. Well, let's watch here, sir.
And right there you're taking apart the flange, correct?
A. Yes.
Q. And you're examining the flange, correct?
A. Yes.
Q. And then you're going to proceed to take a putty knife and take the gasket off, correct, sir?

A. That's correct.
Q. And what you're trying to do there, sir, is just get the gasket off so the flange can be resealed, right?
A. No, I'm trying to get the parent gasket off so that the mating surfaces can be cleaned.
Q. And you got the gasket off, right?
A. Yes.
Q. And so what's in your hand right there, that round thing, the black thing, that's the gasket, right?
A. That's the parent gasket.
Q. Okay.
A. There is residue adhering to the surface of the flange that has to be cleaned by whatever the method was of this particular cycle of tests.
Q. Okay. So you have a gasket that was there. You pulled it off and it's still intact.
A. Right.
Q. And now you're going to use a cordless drill.
A. Right.
Q. And what you're doing there is taking any residue that would have been left and taking it off, right?
A. That's correct.
Q. And this is actually part of the numbers that you rely upon, right?
A. That's correct.

Q. And sir, if you -- sir, would you agree with me that if you have a flange that you separate like you did, you take a putty knife and you pry off the gasket and the gasket is still intact and then you have to clean the flanges, that there's not a whole lot of opportunity for there to be much asbestos on that flange if you still have the gasket intact, correct?
A. I guess it depends on what you mean by intact.
Q. Well, sir, you saw the picture. You had it in your hand. You actually had it by the middle. That was intact, wasn't it, sir?
A. I would call it an intact gasket. But that is not to suggest that there was not adhering gasket material on the flange surfaces. That's the whole purpose of this process of the removal of the gasket.
Q. Would you agree with me, sir, that it wouldn't look like that adhered material?
A. No, I don't agree with you. As a matter of fact, I have a number of photographs that I took over the course of this study to document what the various steps were and there certainly were gaskets that looked like that. That's also not a compressed sheet gasket.
Q. Sir, would you agree with me, at least -- and that was one of the criticisms is that a whole bunch if not over 50 percent of those gaskets that you had in that study came out still intact. That might explain why you got such low

numbers. That's the criticism, correct?
A. No, that's not the criticism. Well, it may be the criticism, but they're just flat out wrong.
Q. And, sir, you would agree with me that at least in that -- and I just showed you one of the clips. There are multiple clips where the gaskets came out still intact. You would agree with me on that, right?
A. My definition of intact was that the gasket was still whole. That does not mean that the gasket did not tear and separate and leave residue on the surface.
Q. And how many of those gaskets in your study were still intact according to your definition?
A. All -- well, I can't answer the question off the top of my head. What I can tell you is there was only one flange face in the entirety of the study that did not have adhering gasket material and such in my judgment did not require cleaning. All the other flange faces had adhering material and some of them were tightly adhered, and some of them had a considerable amount of material to remove.
Q. Well, and that brings up two different questions. The first one is when we're talking about a gasket like I just showed you, one that comes out intact, you would agree with me that a little less than 50 percent of the gaskets that you tested came out intact, correct, sir?
A. I don't recall. But the other problem with this

terminology, the imprecision of this terminology is there are different types of gaskets and gasket constructs. In these photographs themselves, there are two different styles of gasket. One is called a ring gasket and the other is called a full-face gasket.

And in the -- for example, in the study that I did, several of the full-face gaskets, which means that the bolt hole penetrates the gasket, it looks like the flange on the left in your photo. Therefore, the majority of the gasket that was removed was never in contact with the mating surface because the only point of contact is a small ring near the throat of the fitting. Therefore, when you're looking at the gasket, you say, well, that gasket is whole and intact when, in fact, there is a very small part of the gasket that was ever the mated surface and therefore could have been deteriorated.

Q. Sir, you would agree with me that one of the criticisms in the literature is that when you did your study, that at least close to 50 percent of all of the fittings that came came out were in intact, correct?

A. That is nonsense. That may be the criticism. It is flat out incorrect.

Q. Do you know as we sit here today how many of those gaskets that you pulled out of those flanges like I just showed to the court came out in that exexact same way, intact?

A. I don't remember the statistics. I did cover the statistics of that type of information in my manuscript.
Q. Now, in fact, you used a cordless drill. That's what we talked about, correct? That's what we saw.
A. That's correct.
Q. Are you aware of individuals on naval ships using cordless drills to work on valves?
A. It didn't matter whether it was cordless or not. It was a 1250 rpm tool and it is consistent with the rpm -- for example, one of the other photos you had shown from a presentation I had given is the pipefitter in the field polishing the face of a flange with a corded drill. It's the same rpm.
Q. And, sir, the question is very simple. Are you aware of anyone who was a machinist mate in the United States Navy in the 1950s or '60s or even into the 1970s who used a cordless drill to work on valves?
A. No. Again, it's about the rpm. It's not about the source of power to the drill.
Q. And sir, are you aware of any pipefitters that worked in the trades in the 1950s, '60s and '70s that would have used a cordless drill to clean valves?
A. I don't know. You know, possibly. But you're missing the point.
Q. Now, sir, you also did all this work yourself, correct?

A. That's correct.
Q. In fact, Dr. Longo when he did his studies, he actually hired someone who actually had that experience to do the work, correct?
A. Actually, that's not correct with regard to his published manuscript.
Q. Now, when you were doing this work and publishing it, some of the gaskets that came off of those flanges didn't contain asbestos at all, correct?
A. That's correct.
Q. And in fact, even though they didn't contain asbestos, you still used those in determining your time-weighted averages, correct?
A. That's correct. I did not fiber differentiate and therefore I accepted whatever the fiber concentration was in the air, whether it was asbestos or not.
Q. And so how many flanges as we sit here today in your particular study were asbestos free?
A. I don't recall. To the best of my knowledge, that information is also in my published manuscript. But in the published manuscript, I do discuss that for at least one cycle that I recall, all eight of the gaskets were asbestos-containing, and that there was no difference between the results whether they were asbestos-containing or not.
Q. And in fact, in your study you said that there was at

least one valve that required no removal or any gasket residue, correct?
A. One face of one flange. That's what I said.
Q. Right. And 21 of those, less than 50 percent of the gasketting material was even left, correct?
A. I don't remember what the manuscript says.
Q. Now --
A. But that's consistent with what I have been saying is that there was adhering material on the mating surface.
Q. And in fact, you testified in the past that most of the gaskets that came off were intact, correct?
A. As I describe what it means to be intact, meaning you can hold it up, it still looks like a gasket. Some of them were pulverized.
Q. And when we say intact, that's the video that we saw, correct?
A. Well, I would call these gaskets I'm looking at right here intact. They still look like gaskets. It's a matter of term.
Q. Now, when you conducted your study, you -- let me go back. When you were discussing Dr. Longo's studies, you were talking about his vigorous use of the grinder. Do you remember that?
A. Yes.
Q. And in fact, when you've done these studies, what you've

tried to do is make sure that you use a very vigorous process, correct?

A. Depends upon the technique that's being used, but I've measured under conditions which I would -- which I would judge to be nonaggressive through to very aggressive techniques.

Q. Okay. Well, in fact, when you've talked about this in the past, when you're giving presentations about your studies and trying to convince people that your studies should be looked at, you've talked about the use of aggressive techniques, right?

A. That's what I just said, yes.

Q. In fact, you didn't say, well, I used some nonaggressive and some aggressive. In fact, you record the level of aggressiveness, correct?

A. That's correct. So aggressiveness is a judgment call.

Q. Right. And so it's a judgment call how aggressive you get with this, but you would agree with me that you were aggressive and Dr. Longo was aggressive. The question is where is that line of aggressiveness, I guess.

A. No, I don't agree with you. I went through a long list of problems with Dr. Longo's work, and I'd like -- I'd be happy to go through them again if you want me to. But there is no comparison from a design standpoint and an exposure sampling and assessment standpoint between the work that I've done and Dr. Longo. That's evident with the clear difference

between Longo's results and everyone else's.
Q. Well -- and in fact, Dr. Longo's results have been published and peer reviewed just like yours.
A. And he doesn't use them himself. He doesn't rely upon them.
Q. Sir, the question was very simple. Were Dr. Longo's results published and peer reviewed?
A. They were published and peer reviewed, and I would be happy to explain what it means to go through peer review and what it means with regard to the flaws because the peer reviewers did not have access to the information that I had access to to identify the flaws.
Q. And that criticism could be made in regards to your article too, correct, sir?
A. No.
Q. So you're saying the peer reviewers had the video tapes where the gaskets came out whole. They had knowledge of the fact that you used asbestos and asbestos-free and added those into the time-weighted analysis. They had all those things, sir?
A. They certainly could have if they wanted to. My point is that my work has been examined by any number of people over any number of years. There is no criticism that I am aware of published in the literature on them and it has stood up to scientific scrutiny at every examination.

Q. You mean other than the criticism of Longo, Hatfield and Millette and others?
A. I addressed that in an open letter to the editor. And that's -- that's a mischaracterization. Dr. Longo is flat out incorrect, which I addressed in the letter to the editor. He didn't even bother to respond to my criticisms.
Q. So, sir, the bottom line, though, is you have your opinions that have been published; Dr. Longo has his opinions that are published. And what happens in trial is you come in and give your opinion. Dr. Longo gives his opinion or somebody else gives their opinion. And a jury decides what they believe is right, correct?
A. Well, I think more correctly what has happened is the time that Dr. Longo's work has, in fact, been examined it has been found to be junk science. And I don't think it's appropriate in a courtroom to rely upon junk science.
Q. And sir, I understand you want to advocate your position. But the bottom line is that Dr. Longo's publication, the thing that was excluded as junk science in one court from Lamar County in Texas -- have you ever been to Lamar County?
A. I have.
Q. Did you testify in that case?
A. I did, in fact.
Q. In fact, you were on the other side. And one court --
A. Other side?

Q. The other side of the issue. You didn't testify for the plaintiffs, correct?
A. That's correct.
Q. Okay. And one court in Texas said that since it hadn't been published -- because it hadn't been published at that point, correct?
A. I don't -- I don't think that's the court's conclusion is that because it hadn't been published. I think the court was very clear on the erroneous and deceptive statements that Longo was saying with regard to his work.
Q. I understand, but go with me here. Dr. Longo's publication that was excluded in one court in Texas, that had not been published at the time in the peer reviewed literature, correct?
A. That is correct. But that's not what the hearing was about, I don't believe.
Q. And in fact, what happened was Dr. Longo then after that submitted it for peer review. Dr. Mangold and Mr. Liukonen actually submitted the Lamar County order to the editors of that journal to try to keep it from being published, correct?
A. I wouldn't want to speak for them. I don't know about what they did or didn't do.
Q. Sir, you --
A. The manuscript should not have been published. The problem is in peer -- I'd be happy to explain peer review

because I've been a peer reviewer for a number of journals and I know what the instructions are and I know what the process is and I'd be happy to explain that.

Q. And sir, the bottom line is whatever the process is for your paper or for Dr. Longo's, they both went through it. They're both published in the literature. And it's up for scientists to decide which one they want to rely upon, correct?

A. No, I don't agree with you. The purpose of peer review and putting something into a journal is to make sure that it's clear what someone did such that it can be submitted for -- to other scientists to try to reproduce it. Dr. Longo has never been able to reproduce his own work. No other scientist has been able to reproduce his own work either and there are many reasons for it and I went through quite a few of them.

Q. And I understand, sir, you want to advocate your position on that, but the question is very simple. Your paper was published and peer reviewed, correct?

A. Correct.

Q. Dr. Longo's publication was published and peer reviewed, correct?

A. That's correct.

Q. And it was after -- published and peer reviewed after the Lamar County order, correct?

A. That is correct.

Q. Okay.
A. Or during the same period of time and the paths crossed with one another.
Q. Now, sir, when you conducted your study, you didn't use a mask or respirator, correct?
A. That's correct.
Q. And in fact, when you were doing this study, you were doing it at the behest of Coltec and Garlock -- or Coltec, the owner of Garlock.
A. That is correct.
Q. And so you knew -- and we talked about 1996. You knew this particular study would be used in litigation, right?
A. I didn't actually know one way or the other.
Q. So you didn't know that the studies that were funded in the 1990s that were then published in 2002, you didn't think those were going to be used in litigation?
A. What I've known about the work that I've done for 40 years is that it is subject to interpretation by many in many different circumstances, and therefore everything I've done I accept at some point may end up in litigation for some reason. It's not lost on me that when I conducted the studies in the mid '90s for Coltec that it might end up in litigation. I was not being presented as an expert at that time to address questions in litigation.
Q. But what you knew is that this study could be used in

litigation, correct, sir?
A. I was trying to advocate good science as I am right now. Develop a competent and reliable exposure assessment strategy and develop results for someone to rely upon.
Q. And, sir, you knew your study could potentially be used in litigation because it was being funded by Coltec, the owner of Garlock, correct, sir?
A. In that sense it's no different than any project that I do. I want to do the best job I can to provide reliable, competent, relevant, reliable, reproducible results for somebody to rely upon.
Q. I understand, sir. The question is very simple. You knew when you did those studies that were funded by Coltec, the owners of Garlock, that your studies could potentially be used in asbestos litigation, correct, sir?
A. I didn't know how it was going to be used, no.
Q. So you were doing studies that were being funded by a manufacturer of asbestos-containing products and you didn't think it would be used in litigation?
A. I didn't know. The reason that these -- you'd have to ask Coltec those questions.
Q. Now, when you did this study, you wore no mask or respirator, correct?
A. That's correct.
Q. And I want to talk to you about that. Would you agree

with me that when you didn't wear a mask or respirator -- did you already know the results of your tests before you did it?
A. No, I didn't know the results.
Q. So you didn't know if there was potentially a huge exposure to asbestos because you hadn't done the test yet, correct?
A. No, I wouldn't say that either. Industrial hygienist's: Anticipation, recognition, evaluation, control. The first word is anticipation. I'm familiar with the literature. I'm familiar with what causes airborne concentrations of things and I know what it takes to get airborne concentrations. I couldn't conceive of how a gasket could release fiber concentrations at unacceptable levels.
Q. We're going to talk about the literature in a minute. But you would agree with me that at least before you do the test, if there was a potential for exposure to asbestos, that it would be prudent to wear a mask or respirator, right?
A. Not for me, no.
Q. Okay. Now, when you worked with the thermal insulation, you all had masks and respirators, right?
A. Again, it's back to anticipation. I knew the literature. I knew what the material was. I worked with this type of material before. I have a respect for insulation material. I'm not going to do that without a mask.
Q. And prior to your doing this without a mask, what was the

literature that was out there concerning asbestos and gaskets?
A. The only literature I was familiar with was Chang and McDermott, and the Spence and Roche, I think, was right around that same time.
Q. Okay. So you didn't even know about Liukonen at that point.
A. No.
Q. So these pictures that we have of an individual punching out asbestos when they're not even grinding it wearing a respirator, you weren't aware of that.
A. I don't think so.
Q. Were you aware that at the Puget Sound Naval Shipyard that the individual who was just stamping out gaskets was wearing not only a full-faced respirator, but it was supplied with air? You didn't know about that?
A. No, I didn't, but now that I see the data, there is no reason to be wearing any of that.
Q. Okay. But you would agree with me that would have been a prudent thing to do if you think there would have been exposure to asbestos, right?
A. No.
Q. The navy wasn't being prudent when they did that?
A. I'm not going to make a judgment of the navy. What's clear to me is whatever -- for whatever reasons, this person was suited up and wearing this type of a device. It was

unnecessary.
Q. Okay. And so you would think this is unnecessary today too?
A. That's correct.
Q. Okay. Now, you talked about Chang and McDermott. This is the Chang and McDermott article you just talked about, correct, sir?
A. Yes.
Q. And in fact, Chang and McDermott talks about this question of whether you should wear a mask or respirator, and this is what was state of the art at the time, that you would have had prior to ever doing your study without a mask or respirator, correct, sir?
A. That seemed like a compound question.
Q. Was Chang and McDermott available prior to your study, sir?
A. Yes, I was aware of it.
Q. And you were aware of this prior to your study. And Chang and McDermott said, "Workers should be required to wear a half-face HEPA respirator during dry removal of after-service sheet gaskets."
That's what they said, correct, sir?
A. Well, there is something else that goes before this that talks about a precautionary measure. So I think that what they're suggesting here is as a matter of prudence, this might

be a good idea.
Q. Well, and that's what we were talking about. When we're talking about what was known or knowable prior to your study, what was prudent, Chang and McDermott, what was published and what you had available to you, told you that that during dry removal of after-service sheet gaskets -- that's what you did, right? Dry removal of after-service sheet gaskets.
A. That is correct
Q. Correct?
A. That is correct.
Q. It recommends -- or Chang and McDermott -- and this was an industry study done with Chevron, right?
A. That's right.
Q. So you're aware of the Shell studies that Dr -- or Mr. Liukonen talked about. You're aware of those, right?
A. I'm aware of the data points. They're not studies.
Q. Okay. You're aware that Chevron is looking at the same thing, and they actually published it and said if you're doing this type of work prior to your study, wear a half-face HEPA respirator, right?
A. Well, that's what they said, but it's also a field study involving an operating refinery where there is insulation materials. And when I read this, my conclusion was those values that they're reporting are from activity other than the gaskets.

Q. Okay. Well, you disagree with Chang and McDermott, the authors, because what they said -- and it's very specific. It doesn't say, hey, we're working in a refinery and you could potentially be exposed to thermal insulation outside. It says when they're working with dry removal, wear a mask or respirator, correct?

A. That was their precautionary measure approach towards their workers, yes.

Q. And in fact, sir, you know that if your study was going to be used in litigation, that it wouldn't really help if you were wearing a mask or respirator, correct?

A. I had no interest to expose myself to conditions which are unacceptable. If I felt that I was putting myself or my employees in a condition of unacceptable exposures, I would be wearing protective equipment.

Q. Now, other than Chang and McDermott, Dr. Millette has also published on gaskets, correct?

A. What's this?

Q. This is "The Releasability of Asbestos Fibers from Asbestos-Containing Gaskets." You've seen this before?

A. This is not a peer reviewed journal.

Q. And sir, you've seen this before, right?

A. I have, yes.

Q. Okay. And when Dr. Millette is looking at and doing the studies of releasability of asbestos fibers from

asbestos-containing materials, they actually have a full-face respirator, right?

A. Very dramatic.

Q. Well, in fact, we know the folks, Chang and McDermott, who were working for Chevron, not manufacturing asbestos-containing products, say you should wear a half-face HEPA respirator when working with asbestos-containing gaskets. Dr. Millette publishes this, says the same thing, correct, sir?

A. That's not a half-face piece. I don't know what your question is.

Q. The question is is that instead of doing a study where you're not wearing a mask or respirator, at least prior to your study there were studies that indicated that when you're doing gasket work, you should wear a mask or respirator, correct, sir?

A. No, I don't agree with that. Further -- I understand what Jim Millette did here, and the results themselves are not significant.

Q. And I'm not talking about the results, sir. I'm just talking about whether you should wear a mask or respirator when working with asbestos-containing gaskets.

A. Well, the truth is if, in fact, there is no known safe level of exposure to asbestos and if when you're doing anything with asbestos material you should be wearing a mask,

we should all be wearing masks in this courtroom.
Q. And sir, you would agree with me that there is a huge difference between being in a courtroom today in 2013 and being on board a ship working on a valve that could be this size or as big as me grinding on it for a whole day. That's totally different than just being in this courtroom, correct, sir?
A. Who grinds on a valve all day long? What's that scenario?
Q. Sir, didn't you testify that you've seen people grind on gaskets or have to take gaskets off for two days?
A. You're talking about on a ship. I've never seen that on a ship.
Q. Okay. Well, we'll go through that in just a second.
Sir, you're a licensed asbestos abatement individual, right?
A. I am a licensed AHERA building inspector management planner.
Q. Okay. If we go to the AHERA regulations, and if individuals are going to do work -- you've seen this type of danger sign before, correct?
A. Sure.
Q. And in fact, what it says is it tells you that the "Facility and structural building components in this area, such as pipe insulation, floor tiles, transite walls, gaskets,

and structural fireproofing should be assumed to contain asbestos. They are not a health hazard unless disturbed and fiber released. Avoid disturbing materials and creating dust. Cancer and lung disease hazard."

That's a typical sign in your work, correct?

A. No. Actually, I've never seen signage like this. This is not required by regulations. It's not required -- it's not an EPA sign. It's not an OSHA sign. I don't know. For all I know, you concocted it.

Q. Okay. Well, sir, I bought it off the internet.

A. Okay.

Q. Would you agree with me, sir, that --

THE COURT: I got ordained on the internet.

MR. FROST: Well, I didn't make it up myself, Your Honor.

Q. You would agree with me, sir, that when there is a facility that contains asbestos, you've seen warning signs such as this, correct?

A. Sure. During abatement projects.

Q. Correct. And what it says is you shouldn't be messing around with asbestos, including gaskets, and disturbing those materials.

A. Well, that's what this particular signage says, but then it goes on to say "unless disturbed and fibers released." So it doesn't say that fibers get released from these things.

Q. And sir, I didn't say that. The question is is do they treat gaskets in place that are potentially could be disturbed, they are a danger if they're disturbed, correct?
A. No, that's not correct.
Q. Okay. Well, we'll test that in a minute.
Sir, you -- this is the Coltec -- or Colt Industries/Garlock material safety data sheet. Did you review that prior to doing your tests?
A. I don't know whether I saw it or not.
Q. Okay.
A. I'm familiar with these.
Q. You're familiar with this?
A. Sure.
Q. Would you disagree with Garlock when they say, "When removing used gaskets, avoid excessive mechanical actions and place the asbestos-containing residue in a plastic bag for disposal. As a precaution, a dust mask should be worn by individuals when engaged in removal of used gaskets."
So, sir, you disagree with that, correct?
A. Actually, yes, I disagree.
Q. And in fact, sir, if I went to a job site and I was dealing with asbestos-containing gaskets, I'd have to do things like this, correct? I'd have to bag it. I'd have to have special precautions. I'd have to be in a Tyvek suit. I'd have to water it all down and put some type of material

all the way around it to contain just a little gasket if it's small or an entire area if it's a large gasket, correct?

A. Well, there's a few things I'd like to point out about this photo. There isn't a gasket to be seen in this photo so I don't know why you think this is what has to be done.

Q. Sir, are you -- if I go right now and I find a valve that is in place that -- and when I have a valve in a hot system in place, don't I assume particularly in, say, a petrochemical plant or on board a naval ship that it contains asbestos-containing gaskets?

A. I don't know whether it would be assumed to be or not.

Q. Let's just assume that that's what the testimony will be. That you would assume that if you're a petrochemical refinery.

A. All right.

Q. That wouldn't surprise you, would it?

A. No, but it would be really surprising to me if a glove bag was used to remove a gasket. I've never seen that done regardless of the 94 regs. I've never seen that done.

Q. Would you agree with me if there is a gasket in place that I know is asbestos-contained, that I have to segregate off that area. That I have to bring in special people who are trained to contain asbestos. I have to make sure that they have the proper safety equipment, including respirators, in order to even touch that gasket.

A. The reality is if you think that's what's supposed to be

done, the next time you take your car into the shop, take a look around at how they're treating gaskets. Take a look around at the way gaskets are being handled. There is no reason to do them that way and people have figured it out so they don't do it that way.

Q. Okay.

A. There's no reason to.

Q. And I'm not talking about whether at my local shop they do things differently. I'm talking at -- pursuant to the federal regulations, which you're aware of, that's what you're supposed to do, correct?

A. You're supposed to rely upon objective data, which mine is. And if you can demonstrate that there is not a potential for exceeding the PEL, which my data does, there is no reason to do it this way.

Q. And if individuals use the Millette data or they use the Longo data or they even use Chang and McDermott, then what you have to do is comply with all those precautions, including segregating the area, wearing Tyvek suits, wearing masks and respirators, correct, sir?

A. It would actually be a mistake to rely on that data for that purpose because it's missing data. It's not reliable data. And it wouldn't be a very good basis upon which to build a program. But if that's all the data you have, then I understand where you're headed with the how do you a approach

a project. But that's the reason for having quality data in the literature that people can rely upon objectively.

Q. And sir, it's very simple, which is if I'm at a refinery right now and I have a valve that I believe contains a Garlock asbestos-containing gasket -- how much asbestos was in a Garlock gasket?

A. It depends.

Q. From what to what?

A. Here's the problem is that in manufacturing, when you're making a gasket, you're making it with ingredients. So you put X pounds into a blender and Y gallons of whatever into a blender and so you have a recipe card that talks about percentages or weights. That's very different than when I take a bulk material and I want to analyze that material in a laboratory visually making an estimatation of percentage.

So when I'm looking at a result of a bulk sample, that probably doesn't correlate with the results of an ingredient card. So it depends on what you want to use as a basis for the percent.

Q. Give us both. When you do your bulk sampling, what is it? And when it comes out of the factory, what is it?

A. Well, I saw -- I saw somewhere on something today where the gaskets were 70 to 90 percent asbestos. I've evaluated gaskets that are 5 percent asbestos if they're asbestos-containing. So it's a wide range. It depends upon

the construct, whether it's a spiral wound, woven, compressed sheet. There's metal laminated. There are many, many different types of gasket constructs and therefore to say, well, what's the range. It's like, well, okay, from zero to something.

Q. Sir, would you agree with me that compressed gaskets, the type of gasket that Garlock primarily sold, was 70 to 90 percent asbestos when it left the facility?

A. If that's what they've said, then that's what they've said. When I measure bulk samples of gaskets, those are not the values that I find.

Q. And so, sir, you don't believe that if we're on a site or facility where we're dealing with asbestos-containing gaskets, that you have to do any of the precautions that we see in the picture.

A. If the only issue is a gasket, the answer is no. I can tell you I've never seen that done if the only issue is a gasket.

Q. Okay. And how many times have you been in a refinery when they're changing gaskets?

A. A number of times.

Q. Since when?

A. Since 1982.

Q. So when Chang and McDermott of Chevron say that you should use a half-face respirator, you believe that they were

just incorrect.
A. What they're suggesting is as a precaution do the following. I don't disagree with their precautionary approach. I think that's fine.
Q. Now, in fact, sir, when you did some of your testing, some of the flanges that you actually did, you were looking down upon them and they were upside down, correct?
A. I was looking down on them and they were upside down?
Q. Do you see that picture right there, sir?
A. Wouldn't I be looking up at them?
Q. Well, maybe I said that wrong.
A. Okay.
Q. You see the picture in the lower right, correct, sir?
A. Yes.
Q. So you have a flange that's hanging down and the asbestos would be on that bottom portion, right?
A. Correct.
Q. And so you would be -- that's the gasket right there.
A. That's the mated surface, yes.
Q. And so whenever you're taking anything off of that, it just falls right down, right?
A. Well, gravity does have that effect.
Q. Yeah. We can agree on something. Gravity does have that effect.
A. But if we're talking about fibers that you asked me

earlier about drifting in the air, well, the answer is, no, they don't just fall right down.
Q. I'm talking about the gasket material itself. It just falls down from there, correct, sir?
A. Well, what I'm doing is -- yeah, I'm taking off, abrading off various materials that are on the mated surface and that would have the tendency to fall, correct.
Q. And you talked about looking at gaskets on industrial sites. Have you ever seen individuals like this where they're doing -- at industrial sites work on gaskets? Have you ever seen anything like that?
A. I don't know what this picture is.
Q. Okay. It's two individuals working on a flange.
A. Well, then, you've got better eyes than I do because I have no idea what they're working on.
Q. Now, you have looked at -- and seen pictures of Crane Co valves, correct?
A. Yes.
Q. And you would agree with me that Crane Co valves can be very small or they can be very large?
A. There's a range, yes.
Q. In fact, these are typical valves on board ship and you see they're on a pallet. There's like four of them on a pallet, correct?
A. Yes.

Q. And that's just one big valve on a pallet. Do you see that, sir?
A. I do.
Q. And in fact, you're aware, sir, that on board ships, a valve can be very small or it can be as big as a pallet, correct?
A. I've seen quite a range of different sized valves, yes.
Q. In fact, that's a Crane valve right there and you've testified on behalf of Crane Co in the past, right?
A. Yes.
Q. And that Crane valve is bigger than the pallet.
A. Yeah. That's a main steam line valve on a ship.
Q. And those particular valves, when they have that material, that flange, whenever they're in a steam system, they have to have gasket material, correct?
A. Right. It's not going to be compressed sheet.
Q. Now, would you agree with me that Garlock, based on all the cases that you have been involved in, was a major supplier of asbestos-containing gaskets to the United States Navy, correct?
A. I don't know that I would characterize that. From what I do know is that they were substantially smaller as a supplier than Johns-Manville.
Q. Now, you're aware that -- you also testified for Goulds Pumps, correct? Or at least been retained by them.

A. I've done some work for them, yes.
Q. And in fact, Goulds Pumps, these types of pumps are industrial applications and also can be on board ships, correct?
A. I don't know.
Q. And these pumps that -- pumps basically allow things to flow through either a piping system or through a ship, correct? That's what pumps do.
A. Well, you wouldn't use a pump to pump things through a ship. That doesn't make sense.
Q. So there's no pumps on board ships?
A. Well, there are pumps on board ships. But you don't pump through a ship. You pump through pipes.
Q. Well, that's my little terminology. But you're using a pump to pump things through pipes.
A. I try to be as precise as I can be.
Q. And you would agree with me that these types of pumps on board ships or in industrial applications can be very small like we see there or they can be very large, correct?
A. Sure.
Q. In fact, they can be so large in these industrial applications that they can be as big as a man.
A. It depends upon how big the men are, sure.
Q. Okay. And you would agree with me that these applications, because they're in a line, when they have these

flanges, they have to have gaskets that go in between those, correct?

A. Sure. Probably not compressed sheet.

Q. And in fact, when you talked about the requirement that it may take a couple days to work on these gaskets, that's the type of thing that you're talking about, correct?

A. Yeah. This is a really good slide to give an appreciation of how you can't just do a gasket after a gasket after a gasket. That just -- this is -- this is a multi-day project to do anything with this pump. You don't want these systems to fail. That's why these systems are designed not to fail.

Q. Now, this -- you talked in depth about your criticism of Dr. Longo and how someone shouldn't rely upon Dr. Longo's data. You remember that, right?

A. Yeah, but if you read the exchange that I had with them in the letter to the editor, Dr. Longo and Dr. Hatfield are articulate about why people should not rely upon their own work.

Q. Well, and in fact, what you did was you took your study and you sent it to OSHA to try to get gaskets not to have a labeling requirement, correct, sir?

A. No, that's incorrect.

Q. Well, let's walk through your letter. This is your letter, right? Or this is the response to your letter from

the U.S. Department of Labor, OSHA, correct, sir?
A. Correct.
Q. And it's addressed to you.
A. Correct.
Q. And this is in 2013; is that correct? I'm sorry, 2003; is that correct?
A. I don't remember the date.
Q. Okay.
A. You probably blocked it.
Q. You would agree, sir, that if I go on OSHA's website and I type in Fred Boelter, this is what comes up, right?
A. I'm not aware of that.
Q. Well, you are aware you received this letter from OSHA, right?
A. I did, yes.
Q. Okay.
A. Well, not this, but I did receive a letter from them.
Q. And basically what you did was you sent OSHA your study, correct?
A. That's correct.
Q. So the 2002 study, the study that you did without any respiratory protection, that was funded by Coltec, the owners of Garlock, you sent that study to OSHA asking them whether you could get an interpretation of the OSHA rules saying that asbestos-containing gaskets do not have to be labeled with a

cautionary label, correct, sir?

A. That is absolutely incorrect.

Q. Okay. Well, let's walk through this. It says, "This letter constitutes OSHA's interpretation of the requirements." You remember that, correct, sir?

A. Go ahead. I don't remember the letter.

Q. Okay. Do you need a copy, sir?

A. It depends upon the questions you're going to ask.

THE COURT: Let's take a break until 4:15 and we'll let him look at the letter.

Back to the confidentiality thing, I'm going to amend the order to include the language that this email suggests. It seems to me that it's accurate as a matter of fact and a matter of law, and I'm just going to amend our order to provide for that and get back the --

MR. INSELBUCH: I'm sorry, Your Honor, I couldn't hear you.

THE COURT: I'm going to amend the order that was entered yesterday to include the language that this party wants, Tafelski has suggested so that we can get the transcript back. It seems to me that what she says is accurate as a matter of fact and as a matter of law. And I'm happy to include that language. And if that satisfies them, we'll get the document back.

MR. INSELBUCH: Fine, Your Honor.

THE COURT: All right. And I'll do that while we're on a break. Be back at 4:15.

(Brief recess at 4:07 p.m.)

FREDERICK BOELTER

CROSS EXAMINATION (Cont'd.)

BY MR. FROST:

Q. Mr. Boelter, we're back. Just so we can set back to where we were, you had already done your work and published your 2002 article in the peer reviewed literature that was funded by Coltec, the company that owns Garlock, prior to December 22nd, 2003, correct?

A. Correct.

Q. And the letter we have up on the screen is OSHA's response to your letter, and it says, "Dear Mr. Boelter: Thank you for your March 14 letter to the Occupational Safety and Health Administration's Director of Enforcement Programs. You have a question regarding the labeling of gaskets and packings containing greater than 1 percent asbestos. This letter constitutes OSHA's interpretation only of the requirements discussed and may not be applicable to any question not delineated within your original correspondence." Correct? That's what OSHA wrote.

A. Yes.

Q. And what happened is you've taken your study, you sent it to OSHA and you asked them whether asbestos-containing

gaskets, in particular the ones manufactured by Garlock, if there is a warning requirement still in place based on your results, correct?

A. No, before the break I said that's incorrect and I say again that's incorrect.

Q. Okay. Let's walk through what OSHA says. They said, "Scenario," and when they say scenario, what they say is "you have conducted a study of asbestos exposures resulting from the removal and replacement of asbestos-containing gaskets and packings." That's your 2002 study, correct?

A. Correct.

Q. And the question, and this is a question that you raised to OSHA is, "Given your findings," and when it says your findings, that's your particular study, correct?

A. Yes. But also remember, in the previous page OSHA said they were paraphrasing what I was asking.

Q. Right.

A. So this is their interpretation of my question.

Q. Right. This is OSHA's response back to you after you've published and sent them your article trying to get gaskets exempted from a warning that they contain asbestos and that asbestos can cause harm to individuals using it, correct?

A. That is fundamentally incorrect. That's what I said before. You are completely mischaracterizing what I said in my letter. I think it might be worthwhile if you put up my

letter to OSHA.
Q. Well, let's go by OSHA's interpretation. Would you agree with me that as of 2003, that OSHA required that asbestos-containing gaskets contain a warning on them?
A. What's your question, I'm sorry?
Q. Prior to -- the reason you're writing this letter is prior to 2003, OSHA required on asbestos-containing gaskets that they contain a warning, correct?
A. You're saying that's why I wrote the letter?
Q. No, I'm saying OSHA's, OSHA's regulations prior to 2003 required that asbestos-containing gaskets contain a warning, correct?
A. Unless you have objective data that demonstrates that a warning is not required.
Q. Correct. And so prior to this, there's a warning requirement. And what you're doing is you're sending your data to OSHA to try to get an interpretation that now because we have your data, there is no warning requirement, correct, sir?
A. That's not even close to being correct.
Q. Okay. Well, let's walk through what OSHA said. It says, "Given your findings, are gaskets and packings containing greater than 1 percent asbestos exempt from the labeling on the basis of 29 CFR," and then it lists the asbestos regulations. Do you see that, sir?

A. Yes.
Q. And OSHA's answer to you is "No," correct?
A. Well, it apparently is more than no but --
MR. HARRIS: Yes, Your Honor, for this reason we object. As he did with the Chang paper, he's only projecting one part of one sentence, and we ask if he's going to read into the record --
THE COURT: I'll sustain the objection.
MR. HARRIS: -- what the article says --
THE COURT: Sustain the objection unless you include the whole sentence.
MR. FROST: Your Honor, I can hand him the entire document.
THE COURT: Let's do that, then.
(The document was tendered to the witness.)
Q. Sir, I have handed the entire OSHA response to you, correct?
A. Yes.
Q. Okay. And you would agree with me the reply was "no" to that question that you posed to them.
A. It goes on. Basically, what it says is that I don't have standing to ask the question period.
Q. Well, what it says is, "Furthermore, it is our opinion," that's OSHA, "that your data" --
MR. HARRIS: Your Honor, I object. He should read

the whole sentence after no.

THE COURT: Read the sentence.

THE WITNESS: The reply to the question is, "No, your findings cannot be used to exempt the mentioned gaskets and packings from labeling because these provisions are directed toward the manufacturers of the gaskets and packings. Please note that the labels do not have to be affixed to the gaskets and packings or their contents if asbestos fibers have been modified by a bonding agent, coating, binder or other material provided that the manufacturer," which is highlighted by OSHA, "manufacturer can demonstrate that during any reasonable foreseeable handling, storage, disposal, processing or transportation no asbestos, concentrations of asbestos fibers in excess of the permissible exposure limit (PEL), and/or excursion limit will be released," emphasis added according to OSHA.

"Moreover, the manufacturer must provide the demonstration for each specific model, type or make of gasket or packing that the manufacturer wishes to exempt from the labeling." And then it goes on.

Q. And it goes on to say, "Furthermore, it is our opinion that your data do not demonstrate that the gaskets you examined possess the physical property that these provisions require in order to qualify for an exemption from labeling," correct?

A. That's one of the things it says. There's a long paragraph here that's technical in nature.
Q. Right. And says, "Consequently" -- and it deals specifically with the data and how the data was interpreted and how OSHA could interpret your data, correct?
A. It's actually the way that OSHA misinterpreted the data. The impression I had when I read this paragraph, and I'm happy to read the paragraph in its entirety and explain it. But my reading of the paragraph is that Richard Fairfax never read the manuscript I sent him.
Q. I understand that's your interpretation. But you will agree with me that what OSHA talked about, they looked at your data and they came to a different conclusion than you would considering your data, correct?
A. That's -- that is correct. And the reason why I say the impression I have is they never read the manuscript I sent them, because their argument is compound and convoluted and it comes to a conclusion that is not supported by the data I sent them.
Q. And, sir --
A. But fundamentally they said I don't have standing to ask the question.
Q. But they went further than that. They didn't just say you don't have standing, Dr. Boelter; have the manufacturers come. What they do is they go -- they analyze your data and

then they come to conclusions and what they say -- and this is part of that section. It says, "Consequently, if the same person does both tasks, the combined exposure would likely be greater. It is a reasonably foreseeable occurrence for a person to perform the same tasks in regard to 10 gaskets instead of 8 gaskets in an 8-hour period. In that event, a person could be exposed to an 8-hour time-weighted average of asbestos air concentration that could exceed the 8-hour TWA PEL of 0.1 fibers of CC."

And what OSHA is basically saying is that if you change the assumptions, then you could be in violation of those TLVs and therefore you still have to have a label, correct?

A. That's where the convoluted argument comes into play. There are three specific elements to that paragraph, and I'm happy to explain them if you like.

Q. That was OSHA's conclusion, you agree with me on that.

A. That was OSHA's erroneous conclusion --

Q. Okay.

A. -- based on a manuscript they apparently didn't read, and I would be happy to explain that if you like.

Q. Would you agree with me that they read it enough to draw and actually analyze a different scenario than the one that you presented by just changing the amount of time someone works with a process, correct?

A. No. Their analysis is flawed. Their argument is flawed.

It is not supported by the data that I sent them. It's actually contradictory to the data I sent them.

Q. Now --

A. Plus in addition, the data I sent them was total fibers and they're making the assumption they're asbestos fibers and that's one of the -- that's one of the points is to get to their conclusion with my data is total fibers, not demonstrating exceedance of the PEL. The only way they can get to an exceedance of the PEL is combine events, take more events than is reasonably able to be done in a day and then assume that they're all asbestos fibers. Those are -- that is not what the manuscript talked about.

Q. Would you agree with me that, I guess, OSHA and you can disagree on whether you would be in violation using your numbers or not, correct, sir?

A. I think OSHA is correct to say I didn't have standing to ask the question and that's the reason I submitted the letter to them in the first place. So their gratuitous comments after that point are unsupported by the manuscript I sent them.

Q. Okay. You would agree with me, though, sir, that OSHA has never changed its labeling requirements concerning asbestos-containing gaskets, correct?

A. No, they changed the labeling requirements in the mid '80s when the PEL was being lowered. And it shifted from

being an exemption based on encapsulation to an exemption being based on objective data. And I simply was submitting data to them and I said would this be the type of data that you're looking for? That's all my question was. And they said no, for the following reason: You don't have standing. And then they went on to do an analysis that wasn't anything that I asked them to do and isn't supported by the manuscript I sent them.

Q. I know, but the simple answer to the question, sir, is that OSHA required, at least as of the time of your writing this letter, and even today, if you wanted to put asbestos in asbestos-containing gaskets, that you would have to put, if it contained more than 1 percent, a label on it unless you can present some data to OSHA that they believe is correct, you have to put a label on it saying it contains asbestos and warning.

A. I can't agree with your characterization at all. It is correct to say that it is today a requirement by OSHA to presumptively label unless you present -- unless a manufacturer presents specific data by make, model, application, all the things that OSHA talked about, that demonstrates that the PEL will not be exceeded.

Q. And that applies to asbestos-containing gaskets, correct?

A. Sure. It applies to anything that contains asbestos.

Q. Now, and in fact, you're aware that the EPA in 1993 tried

to ban asbestos-containing gaskets, correct?
A. Not in 1993.
Q. You're aware that the EPA did try to ban asbestos-containing gaskets?
A. Not in 1993 I'm not aware of it.
Q. When did they try to ban it?
A. Late '80s.
Q. So at least to the EPA in the late '80s, they felt asbestos-containing gaskets possessed such a harm that they tried to ban them?
A. Well, actually, that's not true. They exempted certain types of asbestos-containing gaskets in high temperature, high pressure applications because there were no alternatives. But that ban was never supported because it was never demonstrated to reduce any risk.
Q. In fact, what happened was manufacturers of asbestos-containing gaskets went to court to keep the ban from being in place, correct?
MR. HARRIS: Objection. That mischaracterizes the article. I'm not sure that any asbestos-containing gasket manufacturer made that petition to the court, and it certainly wasn't Garlock. And so we object to the mischaracterization by counsel. He knows it's not true.
THE COURT: I'll sustain the objection.
Q. Sir, are you aware of the Asbestos Information

Association?
A. I am.
Q. Are you aware that -- of whether Garlock was a member of the Asbestos Information Association?
A. I am not.
Q. Are you aware that the Asbestos Information Association petitioned and went to court to keep the EPA from implementing a ban of asbestos-containing gaskets?
A. I am not.
Q. But you're aware there was a ban proposed by the EPA concerning asbestos-containing gaskets, correct?
A. I am aware that there was a ban for a broad swath of asbestos-containing products and products that had asbestos as an ingredient that were attempted to be banned wholesale and that ban was not supported from my understanding because of the inability to demonstrate those products presented a significant risk.
Q. Now, in this case your report and your video that you showed, this is all the types of things that you've done in the past, correct?
A. I'm not sure what all those pronouns mean.
Q. Well, you've done simulations before where you could take a piping structure, have somebody who's a pipefitter come in and assemble a structure, have somebody come in and design a structure, and then put insulation around it. That's

something you've known how to do for many years, correct?
A. In a certain sense, sure. I was never asked to do something like that, but...
Q. Well, and that's my point. If you were asked in 1996 to do the same thing, you could have done that, correct?
A. Actually, I'm not sure.
Q. How is that, sir?
A. This was a -- this was a very sophisticated project to put together, design and to implement, and I don't -- I don't know that in 1996 that the -- that the materials and the parts and the equipment would have been available to do this.
Q. Well, in fact, what you talked about is that there was old insulation that you said you harvested from abatement projects. Do you remember that?
A. Yes.
Q. So what happened was is that people who were doing asbestos abatement took off old insulation, correct?
A. Correct.
Q. And when they took it off, they were taking it off very carefully to make sure they didn't damage it.
A. Correct.
Q. So that you could reuse it in this study.
A. No.
Q. Okay. They took it off so that you could hold on to it and maybe potentially use it in the future.

A. Hold on to it as exemplars of materials of the past.
Q. Okay. So what we had was people who were taking off asbestos-containing insulation and they were able to take it off in a manner that allowed you to use it in this test.
A. That is correct.
Q. And in fact, what they were able to do was to not cause any major damage to that insulation because if it caused major damage, then it wouldn't be good for your test, correct?
A. Well, I -- I didn't want it to be damaged because I wanted to preserve the material in as intact a condition as I could based on what I saw in the field and the way that it was used in the field.
Q. Correct, sir. So it's possible to take thermal insulation off of steam lines that contains asbestos and not cause damage to it, correct, sir?
A. Yes. It takes the right tools and the right techniques, and, sure, it's possible. But it's not something that a person is going to do when they're trying to get to a leaking pipe.
Q. And in fact, sir, when you did this test, were you able to do this, say, in the year 2000? Could you have done this type of simulation?
A. I don't know. Are you asking me did I have all the materials to do it in the year 2000?
Q. No, I'm asking if you had the ability. If I came to you

and said I want to hire you, not Garlock or Coltec or whoever, and I came to you and I said, Mr. Boelter, I want you to assemble a small piping system and then insulate it with asbestos-containing materials, not the entire system, just around the flanges, don't put any asbestos-containing gaskets in it, you could have done that for me, correct?

A. Well, physically I could have constructed it. The question that I would have goes to study design and that is what other questions are you trying to answer? Are you asking me to simply construct a single flange in the middle of a room and to do something to it and have it represent what?

So my approach as a hygienist and as an engineer is to back up and to ask what are the questions that are trying to be answered with the data that I'm trying to generate?

Q. Right. And if I asked you to answer the same question that you've been asked to answer in this case, whether an individual who worked as a pipefitter would have been exposed to asbestos when they're taking apart thermal insulation, you could have conducted that study for me in the year 2000, right?

A. In a certain sense the answer is yes, of course, I could have conducted it in the year 2000. The practical reality is the answer is no, I couldn't, because I didn't have the materials, first of all.

And the second is that the question -- the question could

not have been answered by simply putting one flange in the middle of a room at waist heighth and insulating it and taking insulation off. That would not have been an adequate study design nor exposure scenario which is what you were asking me about.

Q. When is the first time you could have done this 2013 study? When is the first time you would have had the material and capabilities to do that?

A. Well, if I thought about it, I probably would have done it in 1974 when I was having a piping system insulated that I was using in a field study in a steel mill. And I was using asbestos-containing insulations and I had piping and I had flanges and, you know, that would have been the first time.

Q. And, sir, for the -- for your billings in this case for that study and all the time, you have billed over $1.2 million, correct?

A. I don't know about that. The numbers I added up based on the invoices I knew about was 850,000.

Q. Would it surprise you that the bills that have been submitted to us by Garlock show it to be $1.2 million, a little bit over that?

A. No. It's a tremendously complicated project that took a lot of man hours and a lot of effort.

Q. Now, sir, the very last area I want to talk to you about is you have testified in cases all over the country for

asbestos-containing gasket manufacturers, correct?
A. Well, you know, I have testified in various venues. I've testified maybe 20 times where someone who is either a gasket manufacturer or a gasket user has presented me.
Q. And you remember testifying in 2008 at the Chief Brewer case. It was a case in Los Angeles, California.
A. Yes.
Q. And Chief Brewer was a machinist mate, correct?
A. I don't recall.
Q. Well, I can tell you since I tried that case, Chief Brewer was a machinist mate.
A. Okay.
Q. When you testified, and when you have testified in the past, you've relied on books like this, Asbestos and Disease, Dr. Selikoff's book, right?
A. Yes.
Q. And this is 2008. You were able -- and this book was what? 1978, right?
A. I believe that's correct.
Q. In fact, sir, are you aware that this particular book, if you go to buy it on eBay, is about $800 because most of the asbestos defense lawyers in the country are trying to find it.
A. I've got a couple I'll sell you for that price.
Q. Well, I had to borrow this one. I don't have that much money.

A. Write me a check, I'll send it to you.
Q. Sir, you're aware, though -- you've seen this book a lot. And it's been used in asbestos litigation, in gasket cases in every one you've ever been involved in, right?
A. It's a seminal book in a certain sense, yes.
Q. And so this was available since 1978 until now, right?
A. Yes.
Q. Okay. And in fact, when you testify in front of juries, you talk about thermal insulation and its ability to create amphibole asbestos in the air and you talk about amosite, right?
A. Yes.
Q. In fact, you've seen pictures and there was some discussion with Mr. Liukonen about whether you could take pictures on board ships. You've seen pictures on board ships from the 1940s, '50s and '60s where they actually show what's going on inside them, right? And show the insulation and the valves and things like that. You've seen that, right?
A. No, I don't think I could attest that on board commissioned, operating ships during the '40s, during the wartime, you're going to find pictures that -- during that period of time. They may have been declassified since.
Q. Well, that's what I -- right. But there were pictures available and there's a place called the National Archives. And you've seen things like this in the past that I've shown

up on the board, right?

A. Sure.

Q. Okay. And in the trials of these cases, what happens is there's a naval archivist who comes in and testifies I went to the National Archives. I found these pictures. These are pictures of things on board ships. They are declassified now because they're 30 years old.

But there's pictures of what was going on and what was seen, correct? You've seen things like that. Pictures of navy individuals sitting in their bunks and thermal insulation and things around them. You've seen all these, right?

A. Happy, smiling navy people --

Q. Right.

A. -- in their bunks, yes.

Q. And this is the type of thing that you would present. Lawyers, defense lawyers would bring these types of things and say this is what happens on board ships. These folks are sitting in their bunks and, oh, look in the back there, there's thermal insulation there and that's all amosite. You've seen that before, right?

A. Sure.

Q. And in fact, that's what you've testified to in cases like the Brewer case, right?

A. I don't remember what my testimony was in Brewer.

Q. And you'd show pictures like this where they'd show, you

know, folks sitting there at their bunks in the 1940s, '50s, crew quarters.

A. Well, as you know, I've never presented these photos. Frankly, I've never seen these photos before. I've seen photos that are similar. These are not my photos. I've never seen them. I've never presented them. That's a mischaracterization.

Q. But you've seen and presented these same type of photos, right?

A. No.

Q. And then they have pictures of people working on board ships.

And the whole discussion at those trials is whether there is amosite and people are exposed to thermal insulation just like we're having in this trial, right?

A. Sure.

Q. And in fact, all of these opinions and all of these types of materials are things that you testified to and other folks testify in the tort system, right?

A. No, I can't agree with your characterization. These are not my slides. I've never seen them before.

Q. But you have testified in cases just like this in the Brewer case about thermal insulation and how exposures to thermal insulations dwarf exposures to gaskets, correct?

A. That is correct.

Q. And even though these may not be the exact pictures you have used, you've seen similar pictures and used similar type pictures in asbestos litigation, correct?
A. I have never used these photos.
Q. But you've used similar --
A. The photos I've used are largely photos I have taken.
Q. Now -- and in the Brewer case, that actually went to verdict. You're aware of that, right, sir?
A. I don't remember actually. I often don't know what the results are of the cases.
Q. And you testified for Crane Co in that case. Do you remember that?
A. That's my -- that's my recollection.
Q. And exactly what happened was you testified for Crane Co and the jury was allowed to make an allocation as to the different liabilities of a bunch of individuals. And there's a list of them. You see that, correct, sir?
A. Yes.
Q. And what the jury then does is based on the evidence, based on your testimony and other experts, then if it finds anyone is liable, then makes an allocation. And that's what they did in the Brewer case, the case you testified to.
MR. HARRIS: Your Honor, we object to these line of questions to the extent that they're suggesting that this was a Garlock trial and Garlock was defending themself -- or

defending itself. I don't know that that's the case. If Mr. Frost wants to represent to the court that Garlock was a defendant at this trial and defended itself, then I think this is appropriate. But if he's not, then this isn't appropriate at all.

THE COURT: So far he said he doesn't know anything about this. As far as I'm hearing, it's nothing but questions which aren't evidence, so...

BY MR. FROST:

Q. Mr. Boelter, are you aware -- and Garlock chose to settle that case prior to trial and you testified for Crane Co, but you testified about the same thing, gaskets and packings in that case. You have no memory of that?

A. I don't remember the Brewer trial. I remember being presented in -- by Crane Co in 2008 in Los Angeles.

Q. Okay. That might be the Brewer trial.

A. I didn't know the results of the case and I have never seen this allocation form before.

Q. Okay. So you wouldn't know that Garlock was given an allocation along with Johns-Manville along with other manufacturers. You just wouldn't pay attention to that.

A. Well, it's not that I wouldn't pay attention. This would happen after my testimony, and I don't -- I don't think I've ever known the results of a case.

MR. FROST: Thank you, sir.

THE COURT: You're welcome.

THE COURT: Mr. Guy.

CROSS EXAMINATION

BY MR. GUY:

Q. Mr. Boelter, my name is Jonathan Guy. I represent the futures claim representative, Joseph Grier.

I'm not here to take issue with the strengths and weaknesses of your testimony. I just want to find out one thing.

Your AIHA journal from 2002 talked about airborne exposure from gaskets, correct?

A. The manuscript that I published, yes.

Q. Yes, sir. And that was available to Garlock, correct?

A. Yes.

Q. And you started working for Garlock in 1993, correct?

A. I have never worked for Garlock.

Q. I'm sorry, sir. You're right. You started working for Coltec in relation to Garlock gaskets in 1993, correct?

A. I have never worked for Coltec, either.

Q. Okay. Have you worked for any -- when did you start working on Garlock-related gasket issues first?

A. 1993 is the first engagement that I recall of my company, Boelter Associates, involving Coltec as a client.

Q. In the year 2005 to 2010, as far as you know, was Coltec aware of your opinions concerning the amount of asbestos

fibers that a worker would be exposed to when working around Garlock gaskets?
A. I don't -- that sounds like a question to put to them, but I don't know why they wouldn't know what my opinions were.
Q. Well, you interacted with them a lot, didn't you, sir?
A. Between 2005 and 2010?
Q. No, prior to 2005 you had interacted with Coltec and Coltec's lawyers and Garlock's lawyers concerning Garlock gaskets.
A. Yes.
Q. And they were aware prior to 2005 as to your opinions concerning exposure to asbestos fibers from working around Garlock gaskets, correct?
A. I would hope so, yes.
Q. And they were, as far as you know, aware of that information when they were litigating cases, correct?
A. I would presume so.
Q. And they were aware of that information when they were settling cases, correct?
A. I would presume.
Q. Now, we know about your 2002 study which obviously predates 2005. But now we have your new study, correct, in 2013 concerning asbestos insulation?
A. Well, the studies aren't new. The manuscript was published in 2011.

Q. I think you said there was nothing surprising about the results of your insulation study.
A. I was not surprised with the results in terms of where they fit within the data that had been published. The challenge with the historic data was how do I rely upon this when it doesn't involve pipefitters. But the removal of insulation resulting in elevated concentrations is not a surprise to me.
Q. And it was consistent with the opinions that you held before 2005, correct?
A. Yes.
Q. And those are opinions that you had communicated to Coltec and Garlock's lawyers, correct?
A. And juries and judges.

MR. GUY: Nothing further, Your Honor.

THE COURT: Okay. Thank you.

Mr. Harris.

REDIRECT EXAMINATION

BY MR. HARRIS:
Q. Mr. Boelter, you were asked about the bans but not shown any documents. There was a phase out in the late 1980s by EPA that was ultimately overturned; is that correct?
A. Yes.
Q. But some products I believe you mentioned were exempted from the phase out of products?

A. Yes.
Q. And it says, "Categories and activities not subject to this rule's ban."
Do you recognize this as being from the federal register, the language regarding the exemption you mentioned?
A. I do.
Q. And it says, This grouping includes a number of products they identify as packings, special industrial gaskets. "These products were generally proposed for a third stage ban or a ban via the operation of a permit system. These products are exempted from the final rule's bans because, based on currently available information, EPA has not found that they pose an unreasonable risk of injury to human health under the criteria of the Toxic Substances Control Act, Section 8," I believe. Is that what it appears to be to you?
A. Yes.
Q. Is that your understanding, that packings and certain specialty industrial gaskets were exempted from the rule's ban?
A. Yes.
Q. I want to go back quickly to the Chang and McDermott article. Mr. Frost had projected half a sentence. I think you picked up on what they were actually saying. But he didn't show you the whole sentence. I want to read that to you if we could.

And where he picked up was there at the -- it says, "In addition" -- it starts out, "Asbestos gasketting materials play an important role where their special features are needed. Their use remains acceptable as long as they are still commercially available. Replacing after-service sheet gaskets and cleaning the seating surfaces under wet conditions minimizes fiber release. In addition, regardless of the exposure level, a half-face HEPA respirator should be provided as a precautionary measure," this is where he picked up, "when the seating surface cleaning involves brushing, polishing or sanding, or when handling friable asbestos-containing waste gasket materials." Is that correct?

A. Yes.

Q. I just want to flip back here to a couple of pages before where they have their data. And they studied in this paper -- this was in about what year?

A. This would have been in the late '80s.

Q. Was this the first paper that appeared in the published peer reviewed literature with respect to gaskets?

A. Yes, it would -- I believe it appeared in '93.

Q. And they studied -- at the beginning of the article they discuss spiral-wound gaskets.

A. Yes.

Q. And then they discussed fabrication of gaskets, secondary manufacturing.

A. Yes.
Q. And in this part they're talking about gasket removal and this is the table of their results, correct?
A. Yes.
Q. And so they had wet removal and it was non-detectable, correct?
A. Yes.
Q. And then they had dry removal of gaskets from a couple of valve gaskets, a pump gasket, two flange gaskets. On the dry removal, the exposure level was -- the highest was 0.33, correct?
A. Yes.
Q. I believe we projected that on the chart of studies that you identified before, correct?
A. Yes.
Q. How did the -- now, the .33 or the .99 or the .11, since these are short-term samples, what standard would you compare it to under today's standards?
A. One fiber per CC.
Q. So it's one fiber per CC, and these numbers are well less than that, correct?
A. Yes.
Q. And the methods were non-detect, right?
A. Correct.
Q. And so when we looked at what Mr. Frost had projected,

what they're saying is that even with the wet methods and it's non-detectable, they're still recommending a half-face respirator; is that right?

A. Under certain conditions.

Q. Okay. As a precautionary measure as you noted.

A. Correct.

Q. Okay. You were asked some questions about this letter that Dr. Longo wrote, and the others that joined his letter in addition to Mr. Hatfield were not identified. In fact, they're Larry Newton and John Templin who both worked at Material Analytical Services, Dr. Longo's company; is that correct?

A. Yes.

Q. And you were -- Mr. Frost said, well, you have a paper in the published literature and Dr. Longo has a published paper in the literature. We looked at your criticisms. This is the part -- we discussed this in your direct -- the part where you addressed the MAS paper.

And there at the bottom at the very end of the discussion you noted, "Finally, MAS conducted two subsequent gasket studies, in part, as an effort to 'fix' the quality control problems with the studies reported in the paper. The need to 'fix' the flawed studies was not disclosed in the MAS paper."

And you cite there as a footnote, is that Mr. Hatfield's testimony that you cited?

A. Yeah, I think it was. I have the list if you could shift to the footnotes if you would like to know specifically. But I believe that was Mr. Hatfield.

Q. Let me see if I've got that.

MR. HARRIS: Can we have the ELMO.

I tell you what, I'll just show you.

Your Honor, may I approach?

THE COURT: Yes.

(The document was tendered to the witness.)

THE WITNESS: Yes, that was the deposition of Richard Hatfield. Do you want me to give the cite on it?

Q. No, I think I showed it to the court during the opening statement previously.

MR. HARRIS: If we could switch back to the screen.

Q. Mr. Boelter, I also wanted to show you -- go back to the letter that -- part of it was read to the court and shown to the court. This is the exchange you had with OSHA about whether your paper would support an exemption from the caution labeling requirement by OSHA. Do you recall that?

A. Yes.

Q. And so OSHA first said that you weren't a manufacturer, right?

A. Correct.

Q. And then they also said you have to do this -- you have to apply for this exemption through -- by style numbers of the

gaskets, correct?
A. That is correct.
Q. Could you identify the style numbers of any of the gaskets that you were removing in your study?
A. No.
Q. And then the last part is the part that Mr. Frost focused on. "Furthermore, it is our opinion that your data do not demonstrate that the gaskets you examined possess the physical property that would support the ban."
But you were talking about the assumptions that OSHA was making.
A. That's correct.
Q. Can you clarify what assumptions OSHA made that you were discussing.
A. Sure. They made three -- they combined three sets of assumptions, one of which is the combination of techniques where they combined -- they mathematically added together the flat blade scraper with the ball peen hammer activity. There is nothing in my manuscript that would suggest that's appropriate. And based on the knowledge that I have on gasket behavior, that would be inappropriate.
The second was that rather than doing eight events per day, the person would do ten events per day. There's nothing to support that ten events a day could be done, yet that is their assumption.

And then finally, as a result of these mathematical manipulations, the value would exceed .1 fibers per CC, but the assumption is that the fibers that are being reported were asbestos in the first place and that was an assumption on my part and it was assumptions on OSHA's part. But even OSHA, for example, would not be able to cite on the basis of PCM values. They would have to verify that they're asbestos.

Q. So Mr. Boelter, OSHA's charge, though, is to error on the side of over protection; is that correct?

A. That's correct.

MR. HARRIS: Okay. Thank you.

Thank you, Your Honor. I'll pass the witness.

THE COURT: You can step down.

THE WITNESS: Thank you.

THE COURT: Thank you, Mr. Boelter.

(Witness stepped down.)

THE COURT: Do you have anything else you want to try to do today?

MR. HARRIS: Yes. We have John Henshaw to call, Your Honor.

THE COURT: All right. We'll go till about 5:30 or so.

JOHN L. HENSHAW,

being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HARRIS:

Q. Please tell us your name.

A. John L. Henshaw.

Q. Where are you from?

A. I'm from the Ft. Myers area or Sanibel, Florida.

Q. What do you do for work?

A. I am an industrial hygienist and a safety and health professional.

Q. Are you a certified industrial hygienist?

A. Yes, sir, I am.

Q. How long have you been doing this type of work?

A. My kids say all my life and I say not quite. But it's -- I started in 1975 with Monsanto, so I've been doing it for over 35 years.

Q. Have you held positions in professional organizations?

A. Yes, sir, I have.

Q. Have you held any positions with the government?

A. I have. I held a position with OSHA as the administrator, OSHA administrator.

Q. What did we ask you to do in this case?

A. You asked me -- I was asked to evaluate the extent to which the claimants in this matter might be exposed to asbestos from -- emanating from gaskets and packing versus exposures principally coming from asbestos insulation.

Q. Is there an established methodology in industrial hygiene

for conducting such an assessment?
A. Yes. This would be a typical exposure assessment -- or it's a very big exposure assessment, but it is a methodology that's been used in the industrial hygiene profession.
Q. Now, the court had ordered the current claimants answer questionnaires and submit exposure information. You've had an opportunity to review that information?
A. Yes, sir, I have.
Q. Did you review enough of those questionnaires and the depositions and the materials that were supported in order for you to have an understanding of their exposures?
A. Yes, sir, I have.
Q. And were you --
A. Yes, I was.
Q. -- able to reach any conclusions about the potential exposures associated with contact that they had with gaskets and packing compared with other exposures that the claimants may have had?
A. Yes, sir, and those conclusions are included in my report.
Q. And you have that before you or next to you.
A. Yes, sir, I do.
Q. Now, before I ask you about how you went about doing this, I'd like to ask you about what qualifies you to do this.
Can you tell us what your educational background is.

A. I have an undergraduate in -- from Appalachian State University in Boone, North Carolina, in biology and education.

University of Michigan, masters of public health in 1974.

And then continuing on, board certified industrial hygienist in 1979 to present.

And then I also served at several roles such as the president of the Industrial Hygiene Association.

And then currently serve as the vice president of the Academy of Industrial Hygiene, and I'll be president assuming everything goes correctly in 2014.

Q. You say the American Industrial Hygiene Association. Mr. Boelter told us a little bit about that. Can you tell us what that organization is.

A. It is the largest industrial hygiene association in the world. It's about 10,000 members. When I was president it was about 12,000. They are practicing industrial hygienists and then allied fields such as toxicology, physicians. They can also be members of the American Industrial Hygiene Association.

Q. Can you tell us about your work experience after you received your masters in public health.

A. I graduated from Michigan in December '74.

In 1975, I started with Monsanto Company as a field industrial hygienist. And then I moved up as manager of the industrial hygiene program, then director of the industrial

hygiene program.

In the mid '90s, I was director of Quality and Compliance Assurance for Environmental, Safety and Health for Monsanto Company, for the corporation.

And then in 1997, the Solutia, which is -- Solutia was created which is the business, the chemical business of Monsanto spun off in September 1997. And I became the director of Environmental, Safety and Health for Solutia.

And then a joint venture between Solutia -- this was in 2000. A joint venture between F and C and Solutia which is the name of the company called Stars, and it was a joint venture between those two companys. And I was the director of Environmental, Safety and Health for that company.

Q. So you started out as an industrial hygienist in the field for Monsanto. What type of businesses were they in where you worked as an industrial hygienist?

A. Well, we had multiple businesses. We had five business units at that time. The textile company, which was one of the operating companies, that's the one I was assigned to initially in '74. And that's making textiles: Nylon, polyesters, the raw material. Not making necessarily the fabric, but making the nylon yarn that's used in carpets and other kinds of applications.

Then I also was the industrial hygienist for the plastics and resins division which is making hydraulic fluids and a

number of other compounds that are used in military and industrial applications.

And then I had electronics.

I had several other job duties as an industrial hygienist that dealt with evaluating exposures in those plants.

Q. Were you conducting exposure assessments?

A. Yes, exactly. That's what -- as an industrial hygienist, our job was to evaluate workplaces and determine whether, in fact, we had people at risk of developing disease. And that would include doing monitoring sometimes or sometimes not. Evaluating the conditions and determine whether, in fact, it would put people at risk. And I did thousand -- I took thousands of samples throughout our plants during the late -- mid '70s, late '70s, and early '80s.

Q. Now, where did you learn how to do exposure assessments?

A. Primarily from the University of Michigan. That is where I got my industrial hygiene and operational health training. University of Michigan, the graduate program there. And then, obviously, in the field.

I had responsibilities for conducting it, studying what methods would be appropriate, how to conduct the assessments, and then how to make the interpretations from the data that I had.

Q. What types of chemicals did you study and did those chemicals include asbestos?

A. Well, asbestos was probably the number one issue for the textile plant. We had miles and miles of insulated pipe, hot process. Making nylon is a very hot process. Certainly spinning the nylon. And so we had -- we had a lot of insulation in the textile plants.

We also had a lot of insulation in the plastics and resins because a lot of those are reactors. It's a chemical plant. A lot of piping systems, a lot of drumming operations, and very hot fluids.

Q. Had you collected the air samples or designed the exposure assessments yourself during that time?

A. My job was to design what kind of monitoring needed to be done and who to monitor. We didn't have to monitor everybody, but the assessment was done based on identifying the highest exposed, determine whether in fact their exposures were significant, and then continue work down the line.

So it was my job to design the programs, conduct the monitoring, and make the call, basically, as to whether they're at risk or not.

Q. Have you collected air samples in the field?

A. Yes, sir, I have.

Q. Hundreds or tens --

A. Thousands. Thousands of samples. It depends on what -- what the material was. Asbestos samples, benzine, acrylonitrile, a number of compounds that we were concerned

about. And I had to make a determination as to whether we had people overexposed.

Q. Did you ever conduct a retrospective of the exposure assessment?

A. Yes, sir. We had a number of epidemiologists and occupational physicians on staff and my job was to determine to what degree they were exposed because we were doing retrospectively. So we were trying to determine what people were exposed to the '40s, '50s, and '60s when we didn't have data. Or we may have had data but we had to make a determination as to what level people were exposed to. So that was a retrospective study and -- exposure assessment.

Q. Is that similar to the work that you did in connection with this case?

A. It is similar. This is done by occupations and what we understand from the testimony of what people did. In the case of Monsanto, I had actual personnel records, I had other records to call upon, but it was the same process: Determining what tasks were being done, assigning exposure values to those tasks, and then making an assessment as to what the cumulative exposure or total exposure was to those employees.

Q. So you became the OSHA administrator in what year?

A. 2001.

Q. And what was the process by which you were selected to be

the head of OSHA?
A. I don't know the entire process, but I was -- the congressman and senator from my district, senator from Missouri and the congressman from my district put my name in coming from business, coming from knowing the people OSHA regulates and controls, trying to make it at least -- my job was to make sure it works as opposed to a regulator possibly without any kind of business experience. They can throw anything out, but if people don't understand it and do it, then it's not going to be effective. So they wanted somebody who knew how to make it work in the workplace. And --
Q. You were -- I'm sorry, go ahead.
A. Well, then I put my name in for -- at the first time, the Bush/Cheney transition team. I was asked to come to the White House personnel for an interview. Eventually I got interviewed, and I was nominated by President Bush in June of 2001.
Q. And then is that an appointment that requires senate confirmation?
A. Yes, sir. I was confirmed by Ted Kennedy's committee which is the health committee of the senate in August of 2001.
Q. So I want to ask you a little bit more about OSHA. We know generally what it is. But can you tell us what is your responsibility as the administrator of OSHA?
A. OSHA is charged by Congress, and President Nixon signed

into law on December 29, 1970, the OSH Act. Under the OSH Act, OSHA is charged to assure so far as possible every working man and woman in the nation a safe and healthful working condition. That's our mission. The tools we have or the way we go about that are a number of tools. But the bottom line is we have to assure that workers have a safe workplace.

Q. Does OSHA have anything to do with asbestos?

A. Yes, a great deal.

Q. In what way does it affect asbestos -- or the way that asbestos is used in this country?

A. OSHA regulates how people are exposed and minimize exposure and make sure it's below the current PEL, the permissible exposure limit. And there are certain work practices, there are certain tools.

The first standard was published in 1972 which is the first OSHA rule-making under 6B rule-making under the statute which is the first full fledged asbestos -- or standard that OSHA promulgated, and that was in 1972.

Then they promulgated another standard in '86 and then another one in '94.

Q. Okay. Is the permissible exposure limit from an industrial hygiene point of view regarded as a safe or an unsafe level of exposure?

A. It is regarded -- again, meeting that definition, it is

regarded as the safe limit. OSHA enforces to that limit. And if people are exposed to less than that, OSHA has no grounds to make any action. And they are charged to provide a safe workplace and that is the permissible exposure limit in this country, the 0.1 fibers per CC as averaged over an 8-hour day.

Q. While you were the administrator of OSHA, did you have any contact with asbestos? Is that an issue that you ever had to address in any situation?

A. I did. I was confirmed in August 2001. Then September 11, 2001, we had a concern about asbestos exposure at the World Trade Center as well as the Pentagon. And our job was to determine whether, in fact, we had sufficient exposure to asbestos.

We began monitoring on Wednesday. The crash was on Tuesday morning. Wednesday we began monitoring. We had a great deal of data. EPA and OSHA did that. We had a great deal of data by Friday, and we continued to monitor for 12 months after that during the search and rescue, clean up and recovery period at the World Trade Center.

Q. Did you ever have any other opportunities or was there any other times during your time at OSHA that you dealt with that -- an asbestos issue?

A. Frequently there's discussions at the agency with staff about asbestos, about all hazardous materials that OSHA has some responsibility for or has standards or discussions about

writing standards for other hazardous materials, and asbestos frequently came up.

But the one that I particularly remember was Senator Murray sent a letter to me in 2003, I believe, asking whether OSHA, basically, and EPA had done enough in respect to auto mechanics. And that came, I believe, in the fall of 2003. And I sent a letter back to her in February 2004.

Q. And what was your response?

A. My response was the standard is a good standard. She was asking whether the standard was protective, and I said yes.

And her question was were auto mechanics exposed to sufficient levels to increase risk of disease? And the response was -- at least my part of the response was, based on the NIOSH studies -- and I believe there were 13. I'd have to go back and look at that. But I think there were a number of NIOSH studies. The conclusion was that our standard covered the auto mechanics just fine and there was no need for additional rule-making or additional action on OSHA's part.

Q. You referred to NIOSH studies. What is NIOSH?

A. NIOSH is the National Institute of Occupational Safety and Health and it is the sister agency that was created under the OSH Act in 1970.

Q. Mr. Henshaw, there's -- we have a slide here that identifies some awards that you have received. The President's Award from the American Society of Safety

Engineers; the Henry F. Smyth, Jr. Award, Academy of Industrial Hygiene. Can you tell us what that is.

A. The Henry Smyth award is an award given out once a year to an industrial hygienist who has contributed a great deal to the profession. It is a very prestigious award. And Henry Smyth was one of the pioneers in the field.

MR. HARRIS: Your Honor, at this time we tender Mr. Henshaw as an expert in industrial hygiene and exposure assessment.

MR. FINCH: No objection to that, Your Honor.

THE COURT: He'll be admitted as such.

Q. And Mr. Henshaw, I didn't cover this, but you have published a time or two in the literature; is that correct?

A. And this a representation of that, yes. Yes, sir.

Q. Let's go back and I want to ask you what is the question that we asked you to answer in connection with your work in this case?

A. The -- and this is important in designing any particular study is to understand what exactly you're trying to -- what question you're trying to answer. And the question is "How does the claimants' potential asbestos exposure from work with gaskets and packing compare with their exposure to asbestos from other sources associated with that work?"

And this is a representation coming out of an industrial catalog, a catalog showing industrial applications of

insulation and the gasket. And this represents the flange. And in between the two faces of flange of which there is a bolt going through, there is a compressed sheet gasket or a gasket. Then there is insulation around that flange.

Q. Earlier this week we went through a number of navy illustrations and diagrams on how flanges were insulated in the navy. This appears to be similar. Does this come from a maritime catalog or industrial catalog? What does this represent?

A. This comes out of an industrial catalog. In the work that I've done over the years, this is -- this is the way it is in the majority of our plants.

Q. All right. So how -- how do you know to go about answering this type of question?

A. Well, there's -- there are guidance documents, tools, practices that have been tried and perfected over the years on how to do an exposure assessment. And in fact, in 1983, this is the text, "Risk Assessment in the Federal Government: Managing the Process," where they identify exposure assessment is one of the critical elements in any risk assessment. You have to identify the hazard.

The four major steps are identify the hazard, dose-response assessment, exposure assessment, determining what people are exposed to, and then that helps characterize the risk.

And there's three documents published within AIHA, and the next slide shows that.

The first one I am showing here is the mathematical model for estimating occupational exposure to chemicals. And on page 158 they specifically mention -- and this was published in 2009. "Exposure reconstructions are useful in understanding risk and may be necessary in determining causality."

Q. So these are reconstructions. What does reconstruction mean?

A. Reconstruction is going -- looking in the past and reconstructing what that exposure -- just what I did here is trying to determine what the exposures were in the past to reconstruct that.

And Mr. Boelter published one of the chapters in this text.

Q. Oh, in this book?

A. Yes, sir.

Q. What about this, "A Strategy for Assessing and Managing Occupational Exposures"?

A. This was published in 2006, again, by the AIHA. And it -- it speaks to various stategies, either prospective or retrospective assessments and how to establish the right process to do that. And they specifically mentioned, which I did in this project, establish similar exposure groups. And

they are saying they are needed for efficient exposure assessment for each worker each day. And that's what I tried to do in this assessment.

Q. Okay.

A. And the other document is a 2008 document, I believe. "Guideline on Occupational Exposure Reconstruction." And just a typical discussion in that book: "The typical approach used to reconstruct exposures is to link the work history of an individual worker or group of similar workers to each workplace exposure scenario over the time periods of interest."

And that's precisely what I did in this project.

Q. You were linking the work history of a group of similar workers to each workplace exposure scenario over the time of interest; is that right?

A. That's correct. And the work history often came from the testimony of individuals or their noted job descriptions.

Q. All right. I have a slide here which is an excerpt of the "Reference Manual on Scientific Evidence" which is prepared by the Federal Judicial Center and it speaks or addresses exposure assessment as well; is that correct? I've shown that to you?

A. I've seen that document, yes. This is not a document I used for my assessment.

Q. Right. This is a court or lawyer document for sure.

It's written by Joseph Rodricks. Do you know Dr. Rodricks?
A. I do. And I think he's written a chapter in that reference document.
Q. On exposure science?
A. Yes, sir.
Q. He was actually a co-author or a -- he reviewed Mr. Boelter's pipefitter exposure assessment that Mr. Boelter testified about just earlier. Are you aware of that or do you recall that?
A. I think I saw his name listed, yes.
Q. Okay. So these are -- are these -- you just identified a few references. Does your report describe other references that talk about the methodology that you followed in the course of this project that you did?
A. Yes, sir. And the -- what I wanted to make sure is that we covered the universe. We understood all the data that's relevant to this process. And so looking at all available data in the literature, that's all part of this process.
Q. All right. Can you give us an overview of the process that you followed in this case.
A. Probably just three simple steps. Now, there are multiple pieces to these steps, but as an overview, first develop the similar exposure groups that we talked about earlier in the guidelines.
Next is to determine the exposure profile. What are

people exposed to in those groups?

And then estimate the annual cumulative exposure. And for this assessment, I attempted to establish the one-year cumulative exposure which could be extrapolated to as many years somebody was in that occupation.

Q. Let's talk about the first step, develop similar exposure groups. How did you go about doing this?

THE COURT: Before you get into that, why don't we wind up for the day.

MR. HARRIS: Okay.

THE COURT: And you can start in on this first thing in the morning. We'll be back at 9:30. See you all then.

MR. HARRIS: Thank you, Your Honor.

THE COURT: Thank you. Have a good evening.

(Evening recess at 5:26 p.m.)

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UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF NORTH CAROLINA
CERTIFICATE OF REPORTER

I certify that the foregoing transcript is a true and correct transcript from the record of proceedings in the above-entitled matter.

Dated this 25th day of July 2013.

s/Cheryl A. Nuccio

Cheryl A. Nuccio, RMR-CRR

Official Court Reporter